BOARD MEETING DATE: December 6, 2002 AGENDA NO. 40

PROPOSAL: Amend Rule 1113 - Architectural Coatings

SYNOPSIS: Rule 1113 - Architectural Coatings, which was amended on May 14, 1999, achieves approximately 21.8 tons per day of VOC emission reductions. That amendment has been determined by the appellate court to have been improperly adopted. To ensure that VOC reductions are still timely achieved, staff is proposing to re-adopt the May 14, 1999 amendments with proposed changes to various compliance dates and other clarifying changes, while vacating the specific amendments adopted on May 14, 1999.

COMMITTEE: Stationary Source, September 27, 2002; October 25, 2002, November 22, 2002, Reviewed

RECOMMENDED ACTION:

Adopt the attached resolution:

1. Certifying the Final Subsequent Environmental Assessment (SEA) for proposed Amended Rule 1113 – Architectural Coatings, and
2. Adopting proposed amendments to Rule 1113 – Architectural Coatings and vacating the May 14, 1999 Rule 1113 amendments.

Barry R. Wallerstein, D. Env.
Executive Officer

EC:LT:LL:DD:DR

Background

Rule 1113 is applicable to manufacturers, distributors, and end-users of architectural and industrial maintenance (AIM) coatings. It was first adopted in 1977, and has undergone numerous amendments. The purpose of the rule is to reduce VOC emissions from the use of AIM coatings, primarily by placing VOC limits on various coating categories.

The 1997 Air Quality Management Plan contained specific short term measures for architectural coatings - #97CTS-07 – Further Reductions from Architectural Coatings – Rule 1113. On May 14, 1999, Phase II of Control Measure #97CTS07 was implemented by amending Rule 1113 – Architectural Coatings to establish lower interim and final VOC limits for new and existing coating categories. These included Chemical Storage Tank; Essential Public Service; Floor; Industrial Maintenance; Non-flat; Primers, Sealers, and Undercoaters; Quick-Dry Enamels; Quick-Dry Primers, Roof; Sealers, and Undercoaters; Recycled; Rust Preventative, and Specialty Primers.

Subsequent to the May 14, 1999 amendments to Rule 1113, three lawsuits were filed against the South Coast Air Quality Management District (AQMD) that were subsequently consolidated as one matter by the court. Although the AQMD prevailed in the trial court, on June 24, 2002, the Court of Appeal of the State of California Fourth Appellate District, Division Three, issued a ruling finding that the May 14, 1999 amendments to Rule 1113 were not properly adopted. The appellate court has directed the trial court to issue a writ of mandate to order the AQMD to vacate those rule amendments, based on changes made to the rule within the last 30 days of the rulemaking process. Subsequently, the AQMD filed a petition for review to the California Supreme Court to review that appellate decision. On October 1, 2002, the Supreme Court denied review of the AQMD's petition. As a result, AQMD expects the trial court to issue a writ of mandate ordering the AQMD to vacate the May 14, 1999 amendments.

Also, following the May 14, 1999 amendments to Rule 1113, CARB developed a suggested control measure (SCM) for architectural coatings that was largely based on the interim VOC limits and the averaging provision of Rule 1113 as adopted in May 1999. The SCM, which has January 1, 2003 as the main compliance date for most coating categories and January 1, 2004 for Industrial Maintenance Coatings, has been adopted by 17 of the 35 local air districts in California that have an architectural coating rule.

Proposal

Staff is proposing to vacate the May 14, 1999 amendments. In addition, staff proposes to readopt most of the May 14, 1999 VOC limits with new proposed compliance dates of January 1, 2003 and January 1, 2004 for the interim rule limits (as in the SCM), clarifications to reflect the original intent of the adopted rule, and other changes in response to public, CARB and EPA comments received since the May 1999 amendments. These proposed amendments and clarifications are in direct response to industry comments and concerns received since 1999, and are designed to respond to recent court findings of inadequacies during the adoption process.

The proposed amendments to Rule 1113 include additions and deletions to the definitions, and modifications to the VOC limits, with some new coating categories added to the Table of Standards. Interim VOC limits for most coating categories become effective beginning January 1, 2003 with final VOC limits effective July 1, 2006. Additionally, amendments include significant restructuring of the Averaging Program and expansion of coating categories allowed to participate in averaging, revisions to container labeling requirements, and additional categories added to the Technology Assessments. Benefits of the proposed amendments include achieving emission reductions of 21.8 tons per day on an Annual Average Basis by lowering the VOC limits for many categories. Since the issuance of the proposed rule on November 5, 2002, staff has decided to revise the definition of floor coatings to be limited to opaque coatings for the reasons discussed below.

At the October 31, 2002 Public Consultation Meeting, the Sherwin Williams Company raised a comment which staff interpreted as suggesting that clear floor coatings should also be covered under the definition of floor coatings. In response to that comment, staff revised the definition of floor coatings to remove the limitation that they be 'opaque', so as to include both opaque and clear floor coatings. However, the Sherwin Williams Company later informed staff that it did not advocate this change. In addition, other manufacturers of clear floor coatings have also expressed concern about this change.

Therefore, staff has re-revised the definition of floor coatings so they are limited to opaque coatings as it had been published at the October 31, 2002 public consultation meeting. This limitation was also part of the May 14, 1999 amendments, as well as the CARB SCM. In light of the appellate decision overturning the May 14, 1999 amendments, District Counsel has reviewed this change and determined that because this proposal was specifically available for public comment, it would not trigger the same concern that the appellate court had raised in its opinion.

CEQA

Pursuant to the CEQA and AQMD Rule 110, AQMD has prepared a Subsequent Environmental Assessment for the proposed amendments to Rule 1113. The Draft SEA was circulated for a 45-day public review and comment period from August 6, 2002 to September 4, 2002. Four comment letters were received on the Draft SEA and responses to the comment letters have been incorporated into the Final SEA for the proposed project.

Socioeconomic Analysis

The socioeconomic analysis for the May 14, 1999 amendments proposed to be readopted, was conducted by staff prior to their adoption. The socioeconomic impacts for reducing the VOC limits for High Temperature Industrial Maintenance Coatings, Pre-Treatment Wash Primers, and Swimming Pool Repair which were part of the May 14, 1999 amendments were subsequently conducted by the socioeconomic analysis for the CARB SCM. The two coating categories Chemical Storage Tank Coatings and Essential Public Service Coatings proposed to be deleted were analyzed under the Industrial Maintenance Coating category in the 1999 Socio-economic impact assessment. Based on the thorough cost-effectiveness and socioeconomic impact assessment conducted for the proposed amendments, staff has concluded that the proposed amendments are within the costs identified in the AQMP. Staff will continue to evaluate the cost-effectiveness and socioeconomic impact for the proposed final VOC limits. The final Socioeconomic Impact Report included in the May 14, 1999 Staff Report is available through the internet at the AQMD website.

AQMP and Legal Mandates
The 1997 AQMP estimates increased AIM emissions for the Summer-day average (due to population growth) at 68.2 tpd in 1997, growing to 79.4 tpd by the year 2010, due to population growth, without additional AIM regulations. If left unchecked, AIM coating emissions alone would account for more than a fifth of the total VOC emissions in the AQMD. Therefore, the 1997 AQMP has a specific control measure (CTS-07) to reduce AIM VOC emissions by 50% in two phases by the year 2010, as well as a long-term measure requiring an additional 25% reduction in VOCs. This cumulative 59.5 tpd emission reduction based on the Summer Planning Inventory is the largest of all short- and long-term control measures.

These proposed Rule 1113 amendments will implement Phase II of the control measure. The current proposal emphasizes reformulation of existing coatings, primarily by using currently-available, technologically-innovative resins, as well as utilizing the growing list of exempt solvents.

Implementations and Resources
Existing AQMD resources will be sufficient to implement the proposed changes to this rule with minimal impact on the budget.

Attachments
A. Summary of Proposed Amendment
B. Rule Development Flow Chart
C. Key Contacts
D. Key Issues and Responses
E. Resolution
F. Rule Language
G. Staff Report
H. CEQA

ATTACHMENT A

Summary Of Proposed Amendments to Rule 1113 – Architectural Coatings
Readopt the May 14, 1999 VOC limits and the Averaging Compliance Option with the following differences: • Establish lower interim and final VOC limits for new and existing coating categories which will match or be more stringent than those in the CARB SCM for: – High Temperature Industrial Maintenance (IM) Coatings, – Zinc-Rich IM Primer, – Pre-Treatment Wash Primers, – Bituminous Roof Primers; and – Swimming Pool Repair Coatings. • Change the interim compliance dates in the May 14, 1999 amendments, effective July 1, 2002 to January 1, 2003 for most categories and to January 1, 2004 for Industrial Maintenance Coatings. • Delete the Essential Public Services and Chemical Storage Tank definitions to conform to the CARB SCM. **Other Revisions and Clarifications** • Extend administrative requirements for labeling of rust preventative coatings and specialty primers to January 1, 2003. • Align the exemption expiration date for architectural coatings recommended by the manufacturer for use solely as quick-dry primers, sealers and undercoaters, and annually reported, to January 1, 2003. • Clarify Applicability to include “field” application. • Clarify the definition for Floor Coatings, Industrial Maintenance Coatings, Metallic Pigmented Coatings, and Sealers. • Clarify that Specialty Primers are included in the Averaging Compliance Option. • Correct the exemptions for small coatings manufacturers to clarify that “lacquers and flat coatings” were not intended to be exempt from the VOC limits. • Identify specific records that can be used to track sales and emissions and clarify that the sell-through provision of the rule also applies to coatings included under the Averaging Compliance Option Program. • Change compliance dates for VOC limits to meet the CARB SCM, and make the following additional administrative changes: clarify definition of specialty primers; clarify who is responsible for the improper use of a coating by an applicator; and exempt coatings applied to test specimens for research and development purposes of those coatings.

Summary Of Proposed Amendments to Rule 1113 – Architectural Coatings
Other Revisions and Clarifications (cont'd) • Incorporate certain changes at the request of USEPA • Add language to allow a Rust Preventative Coating to be used for industrial use, as long as it meets the VOC limit specified in the Table of Standards for Industrial Maintenance Coatings. • Clarify the three year sell through provision. • Allow the labels of specialty primers to display one or more of four possible descriptions. • Clarify that the manufacturer, distributor, or seller of a coating is not liable for the improper use of a coating by the applicator. • Clarify that coatings are exempt from the VOC limits when applied to test specimens for the purpose of research and development of those coatings.

ATTACHMENT B

RULE DEVELOPMENT PROCESS

RULE 1113 - Architectural Coatings

Appellate Court finds 1999 Amendments were not properly adopted

June 2002

Supreme Court Petition for Review Denied October 2002

Appellate Court Decision Final with Writ of Mandate to be Issued to Vacate 1999 Amendments

Working Group Meetings (Including Teleconferences)

February 28, 2002, May 17, 2002; May 29, 2002;

Public Workshop: August 21, 2002

(8,800 notices mailed for workshop)

Public Consultation Meetings

September 24, 2002; October 31, 2002

Notice Published and mailed for Public Hearing November 5, 2002

Public Hearing: December 6, 2002

ATTACHMENT C

KEY CONTACTS LIST	
Bert Adams	Glaze N Seal
Ron Adams	Hill Brothers Chemical Company
Heidi Alderman	Air Products & Chemicals Inc.
Don Ames	CARB
Robert Avery	Eastman Chemical Company
Barry Barman	KTA-TATOR, Inc.
Paul Beemer	Henry Company
Chuck Benesch	D’Angelos
Vance Benietz	Zynolyte/ICI Paints
Howard Berman	Environmental Mediation, Inc.
Larry Breeding	Walt Disney Company
Bob Briody	Masconq
Mike Butler	BEHR Process Corporation
Larry Cerenzie	FSC Coatings
Curtis Coleman	Law Offices of Curtis L. Coleman
Gerrold Coleman	Paramount Pictures
Tim Conkin	LADWP
Stan Cowen	Ventura County APCD
James Dabbs	Spectra-Tone Paint Corporation
Peter Davy	Mirachem Corporation
Mike De La Vega	Life Paint Company
Lee Doyle	S. G. Pinney & Associates Inc.
Phil Drooks	MWD
Mark Dyer	ICI Dulux Sinclair
Andrew Elliott	Highland-International
Mehrdad Emami	Eastman Chemical Company
Bob Floriani	ICI Dulux Sinclair
Yvonne Fong	USEPA
Chris Foster	Smiland & Kachigian
Barbara Fry	CARB
Preeti Ghuman	LACSD
Anil Goel	Poly-Carb, Inc.
Robert Gross	PPG Industries, Inc.
Lloyd Haanstra	DEFT
Dean Habegger	Devoe Coatings
Madelyn Harding	Sherwin-Williams Company
Richard Hart	Hart Polymers

KEY CONTACTS LIST	
Brian Heath	Valspar Corporation
Robert Henderson	Environmental Engineering & Coatings
Jeff Hill	McBride Hill
Tony Hobbs	Tnemec Corporation
Christian Hurley	CARB
Steve Izuwara	Walt Disney Imagineering
Mike Jaczola	CARB
Barry Jenkin	Benjamin Moore Paints
Jason Jones	Sherwin-Williams
Jim Kantola	ICI Dulux Sinclair
Carol Yip Kaufman	MWD
Tim Kennelly	DWR
Ned Kisner	Triangle Coatings
Aiping (Allison) Kuang	Chevron
Mike La Quay	Sierra Performance Coatings
Martin Ledwitz	SCE
Gene Lee	Rohm & Haas Company
John Long	Vista Paint Corporation
Dave Lunzer	Dow Chemical
Pat Lutz	Dunn-Edwards Paints
Todd Maiden	Seyfarth, Shaw
Tom Marsden	Disneyland Resort
John Means	Universal Studios
Debra Mendelsohn	County of Los Angeles
Clayton Miller	CIAQC
Norm Mowrer	Ameron Protective Coatings Systems
Jerry Mulnix	Cal Western Paints, Inc.
Stephen Murphy	Murphy Industrial Coatings
Dinkar Naik	Pacific Polymers
Bob Nelson	National Paint & Coatings Association
Wayne Nelson	Spectra-Tone Paint Corporation
Marcy Nichol	TruValue Manufacturing
Brian Niemy	DuPont Engineering Services
Amanda Noble	EMWD
Jim Nyarady	CARB
Herb Pigram	Rohm & Haas Company
Hamid Pourshirazi	Vista Paint
Stanley Pruskowski, Jr.	Rohm & Haas Company
Bob Reeves	Benjamin Moore Paints

KEY CONTACTS LIST	
Ellen Reinhardt	**The Better Paint Tray LLC**
Mark Robson	**Golden State PDCA**
Andy Rogerson	**Caltrans**
Raymond Russell	**Smiland Paint Company**
Steve Sanchez	**US Can Company**
Ken Schlereth	**Carboline Coatings**
Jim Sell	**NPCA**
Rodney Sells	**Resin Technology Company**
William Shoup	**SSPC**
Mark Simon	**MWD**
Al Singh	**Surface Protection Industries**
Bill Smiland	**Smiland & Kachigian**
Craig Smith	**C-F**
Christine Stanley	**Ameron Protective Coatings Systems**
Bob Steel	**SICC**
Gene Sweeney	**Disneyland Resort**
Pat Sweeney	**KTA-TATOR, Inc.**
Ray Szkola	**Eastman Chemical Company**
Gerald Thompson	**BonaKemi USA, Inc.**
Jay Umphrey	**EPS Inc.**
John Wallace	**MWD**
Herb Wallenstein	**Harco Chemical Coatings Inc.**
John Waltman	**Cal Western Paints, Inc.**
Robert Wendoll	**Dunn-Edwards Paints**
Ron Widner	**Benjamin Moore Paints**
Robert Wight	**EPS Inc.**
Max Wills	**Cal Poly State University**
Kevin Worrall	**Texture Coatings of America, Inc.**

ATTACHMENT D

KEY ISSUES AND RESPONSES Rule 1113	
Issue	Response
The Industrial Maintenance Coating category limit of 250 g/l limit should be extended to be consistent with the State SCM and to allow for additional time for testing required by specification standards for new products.	*Agree* The AQMD has proposed an extension of the implementation date for the industrial maintenance coating category, currently at 420 g/l VOC, from the proposed May 1999 rule date of July 1, 2002 to January 1, 2004. This will allow facilities that must meet stricter specification standards such as Essential Public Services to maintain the current VOC limit of 420 g/l essentially giving those facilities an additional 18 months to comply with the 250 g/l limit in rule. This proposed date aligns the requirements for industrial maintenance coatings with the SCM, allowing even more time for the manufacturers to prepare and for the users to test compliant coatings. Averaging is also available to obtain specific coatings beyond the January 1, 2004 effective date.
The Specialty Primer category does not include stain blocking or extractive bleeding.	*Agree* The AQMD does not believe that extractive bleeding or blocking stains should be considered part of this higher-VOC limit for Specialty Primers. While the National Technical Systems Study showed that the solvent-based primers performed better for stain-blocking of tannins from exterior wood substrates, as compared to waterborne primers, these primers were general primers and not specifically formulated for stain-blocking. In contrast, the KTA TATOR technology assessment showed that specific low-VOC waterborne primers listed for stain-blocking and selected for the evaluation performed to an equivalent or superior level over the solvent-based solvents. Additionally, the latest MPI approved products list includes numerous stain-blocking primers with a VOC content < than 200 g/l.

KEY ISSUES AND RESPONSES Rule 1113	
The future final VOC limits are too restrictive and adequate coating replacements are not available that match current performance for any categories.	*Disagree* The AQMD does not believe that future limits will restrict the availability of adequately performing coatings. In fact, since May 1999, additional evidence included in the staff report further confirms the District's conclusion on performance and availability of lower-VOC products. The District's technology assessment, which included an evaluation of coatings available in 1999 for the specified coating categories, as well as a comprehensive laboratory and field testing evaluation conducted by a third-party contractor, with oversight by the Technical Advisory Committee (TAC), showed availability, commercial acceptance, and high performance associated with the low-VOC coatings. It is expected that by 2006, even more high-performing industrial maintenance coatings will be available. In addition, manufacturers may continue to make higher VOC coatings available under the averaging provisions of the rule and even under the final limits. Furthermore, the additional information shows an increase in commercially available coatings compliant with the final VOC limits. A list of these new products is included in the Staff Report, Appendix C.
The Averaging Compliance Option in the rule should allow for sell through of products.	*Agree* Language has been added to Appendix A of the rule to clarify that a coating included in an approved Averaging Program will be allowed to be sold, supplied, offered for sale, or applied for up to three years after the end of the compliance period specified in the approved Averaging Program.
Rust preventative coatings meeting the VOC limit for Industrial Maintenance Coatings, should be allowed by the rule to be used in non-residential settings.	*Agree* Section (c)(2) of Rule 1113 specifically indicates that Industrial Maintenance Coatings are not for residential use and rust-preventative coatings are not for industrial use. Furthermore, the definition of industrial maintenance coatings specifically prohibits their use in residential areas, and the definition of rust preventative coatings indicates that they are limited to metal surfaces found in residential and commercial uses. However, based on oral testimony in public meetings, as well as subsequent letters from industry members, and considering the requirements of the CARB SCM, the proposal has been revised to indicate that rust preventative coatings may be used in industrial environments as long as the VOC content of those rust preventative coatings meet the compliance limit for the industrial maintenance coating VOC limit.

KEY ISSUES AND RESPONSES Rule 1113	
The AQMD should consider zinc-rich primers as metallic pigmented coatings and not Industrial Maintenance coatings, because there are not adequate zinc-rich coatings available that can meet the proposed 250 g/l limit in the rule.	*Disagree* The AQMD believes that zinc-rich industrial maintenance primers used specifically for corrosion protection do not belong in the metallic pigmented coatings category used primarily for aesthetics. However, the proposed rule has been modified to include a new category called zinc-rich industrial maintenance primers, and an interim limit of 340 g/l limit has been proposed effective January 1, 2003, with a final limit of 100 g/l, effective July 1, 2006.
Low VOC floor coatings are inferior to their high VOC counterparts.	*Disagree* The AQMD has empirical data showing that low-VOC floor coatings perform just as well, and in some cases, better than their higher VOC counterparts. As a part of technology assessment for the May 1999 amendments, staff identified hundreds of floor coatings that comply with both the 100 g/l interim VOC limit, as well as the 50 g/l VOC limit to be implemented in July 2006. Furthermore, the technology assessment recently completed by KTA TATOR, assessed the performance of both single- and multi-component floor coatings. This analysis indicated that the best performing floor coating was a zero-VOC, two-component coating, and one of the two single component compliant floor coatings performed better than the higher VOC floor coatings for most characteristics, while the other performed worse. Additionally, staff has identified numerous additional single- and multi-component floor coatings that meet the interim VOC limit of 100 g/l as well as the final VOC limit of 50 g/l, and are included in Appendix C of the Staff Report. Based on the District's technology assessment and KTA Tator's laboratory assessment, the interim VOC limit of 100 g/l and the final VOC limit of 50 g/l are feasible.

KEY ISSUES AND RESPONSES Rule 1113	
Low VOC high-gloss nonflat coatings are inferior to their high VOC counterparts.	*Disagree* The testing conducted by KTA TATOR on each category of coatings was designed to assess the overall performance, and the TAC did not specify that one characteristic was more important than another. The tables summarizing the results for both interior and exterior high-gloss nonflats indicate that for some characteristics, the low-VOC compliant products performed equivalent to or better than their higher VOC counterparts, as well as worse for some characteristics. This does not indicate that the coating that performed worse completely failed. In the KTA TATOR study, as well as the SCM, High Gloss Non-Flats are defined as coatings with a gloss of no less than 70 on a 60 degree meter. This was the criteria used by the TAC, who had oversight over the coatings selected and used in the assessment. The TAC relied upon gloss values published in the manufacturer's data sheets. The actual measurement for gloss shows that none of the coatings included in the testing, which includes the products with a VOC content less than 150 g/l, as well as more than 150 g/l met the gloss values, including the product manufactured and sold by the commentator's employer, met the gloss levels indicated in the high-gloss nonflat definition. The actual gloss values of waterborne coatings have been an issue within the industry for several years, and prompted the Master Painter's Institute to conduct a special study entitled "New MPI gloss levels study 'spotlights' industry problem". This study also concluded that the industry has caused a lot of confusion in their marketing literature by going away from actually reporting gloss levels at both the 60 degree and 85 degree meter. MPI proposed to adopt standardized gloss reporting methods as a resolution to this on-going issue. Additionally, the staff report includes lists of approved products by MPI, including nonflat coatings that meet the high gloss criteria of 70 or greater on a 60 degree meter. This clearly shows that compliant nonflat high gloss coatings are available and meet the MPI standards for performance, including gloss.

A T T A C H M E N T E

RESOLUTION FOR

PROPOSED AMENDED RULE 1113 - ARCHITECTURAL COATINGS

RESOLUTION NO. 2002-

A Resolution of the Governing Board of the South Coast Air Quality Management District ("AQMD") certifying the Final Subsequent Environmental Assessment prepared for the proposed amendments to Rule 1113.

A Resolution of the AQMD Governing Board Amending Rule 1113 - Architectural Coatings, and vacating the May 14, 1999 Amendments to Rule 1113.

WHEREAS, the Court of Appeal has determined that the May 14, 1999 amendments to Rule 1113 were not adopted in accordance with Health & Safety Code Section 40726, and has directed the tried Court to issue a writ ordering that these adopted amendments be vacated; and

WHEREAS, the 21.8 tons of VOC per day of reduction represented by these Rule 1113 amendments is critically needed for this Air Basin to achieve federal ambient air quality standards, and the readoption of these pollution limits is required by the AQMP and a federal court order; and

WHEREAS, the currently proposed amendments to Rule 1113 achieves the recessing 21.8 tons of VOC per day of reductions and such a replacement rule is required to be adopted pursuant to federal court order entered February 23, 2000, and that as other control measure as available which can achieve this tonnage of required VOC emission reductions; and

WHEREAS, a minor revision has been made to these proposed amendments since they were published on November 5, 2002; that revision being made in response to industry comment that industry has not requested a change to the definition of floor coatings, as discussed at the October 31, 2001 Public Consultation meeting, to delete the limitation that floor coatings be opaque; and

WHEREAS, other industry members also support the position that the floor coating-distribution not be changed to delete the "opaque" limitation; and staff still supports such a position; and

WHEREAS, District Counsel has carefully reviewed the Court of Appeals decision and has determined that this change to the floor coating definition, because it had been originally circulated to the public, would the Court's concern that opponents or proponents be given adequate notice of this proposal; and

WHEREAS, the AQMD Governing Board has further determined in accordance with its adopted procedures, that this change is also not significant within the meaning of California Environmental Quality Act Guidelines Section 15088.5 and California Health & Safety Code Section 40726; as (1) there is no impact on the proposed emission reduction, to be achieved from the rule; (2) the sources affected by the proposed rule are not changed; (3) the contents of the public notice covers the proposed change and (4) the proposed project under CEQA encompasses this exact change; and

WHEREAS, the AQMD Governing Board accepts the proposed change to the floor coating definition suggested by staff and thereby makes this change in accordance with California Health & Safety Code Section 49726, the proposed amendments to Rule 1113; and

WHEREAS, the AQMD Governing Board finds and determines that the proposed amendments to Rule 1113 - Architectural Coatings, are considered a "project" pursuant to the California Environmental Quality Act (CEQA); and

WHEREAS, the AQMD has had its regulatory program certified pursuant to Public Resources Code Section 21080.5 and has conducted CEQA review and analysis pursuant to such program (Rule 110); and

WHEREAS, the 1997 AQMP contained a control measure, #97CTS-07, which Proposed Amended Rule 1113 partially implements, for which a program EIR was prepared and certified; and

WHEREAS, the AQMD staff prepared an initial study for the 1999 SEA, which is applicable to the 2002 EA, subsequent to the program EIR setting forth the potential environmental consequences of adopting Proposed Rule 1113 - Architectural Coatings; and

WHEREAS, the program EIR for the 1997 AQMP was incorporated by reference by the draft SEA to deal with regional influences, secondary effects, cumulative impacts, broad alternatives, and other factors that apply to the program as a whole; and

WHEREAS, the final SEA concluded that the proposed project resulted in no significant impacts, and as a result no new effects could occur or new mitigation measures would be required; and

WHEREAS, the 1999 SEA also was prepared in compliance with a Superior Court order relating to industrial maintenance primers and topcoats, quick-dry primers, sealers and enamels; and

WHEREAS, the 2002 SEA was prepared in compliance with a Appellate Court order relating to improper adoption of Rule 1113 – Architectural Coatings on May 14, 1999.

WHEREAS, it is necessary that the adequacy of the environmental document be determined by the AQMD Governing Board prior to its certification; and

WHEREAS, four comment letters were received commenting on the Draft SEA; and

WHEREAS, the Draft SEA has been revised and responses to comments have been prepared such that it is now a Final SEA; and

WHEREAS, the final SEA has been completed in compliance with CEQA and Rule 110; and

WHEREAS, an oversight committee composed of industry members and District staff was created to design and oversee a study to examine performance characteristics of future low to zero-VOC coatings as compared to high-VOC coatings; said study being conducted by the National Technical Systems ("NTS"), a contractor selected by the joint oversight committee; and

WHEREAS, the laboratory and field testing results for the NTS study have been completed with test results showing some availability of low to zero-VOC coatings that perform comparably to high-VOC coatings; said test results being consistent with staff's own technology assessment; and

WHEREAS, the staff report, which includes the final SEA and the Socioeconomic Impact Analysis conducted in May 1999, this December 6, 2002 Board letter, and other supporting documentation was presented to the AQMD Governing Board and that the Board has reviewed and considered the entirety of this information prior to approving the project; and

WHEREAS, the AQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from Sections 39002, 40000, 40001, 40440, 40463, 40702, and 41508 of the California Health and Safety Code; and

WHEREAS, the AQMD Governing Board has determined that a need exists to amend Rule 1113 - Architectural Coatings to achieve VOC emission reductions of up to 38 % of the VOC emissions inventory for architectural coatings, in accordance with the 1994 and 1997 Air Quality Management Plan ("AQMP") Control Measure CTS-07, which equates to about 21.8 tons per day based upon current emissions inventory and about 25 tons per day based upon projected 2010 emissions inventory; and

WHEREAS, the AQMD Governing Board has determined that the proposed amendments to Rule 1113 - Architectural Coatings, are written and displayed so that the meaning can be easily understood by persons directly affected by them; and

WHEREAS, the AQMD Governing Board has determined that Rule 1113 - Architectural Coatings, as proposed to be amended, is in harmony with, and not in conflict with, or contradictory to, existing statutes, court decisions, or state or federal regulations; and

WHEREAS, the AQMD Governing Board has determined that Rule 1113 - Architectural Coatings, as proposed to be amended, does not impose the same requirement as any existing state or federal regulation, and the proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the AQMD; and

WHEREAS, the AQMD Governing Board in amending the regulation, references the following statutes which the AQMD hereby implements, interprets or makes specific: Health and Safety Code Sections 40001 (rules to achieve ambient air quality standards), 40440(a) (rules to carry out the Air Quality Management Plan), 40440(b) (BARCT), and 40440(c) (cost effectiveness), and Federal Clean Air Act Section 116; and

WHEREAS, the AQMD Governing Board determines that there is a problem that Proposed Amended Rule 1113 - Architectural Coatings will alleviate, (i.e., the South Coast Air Basin does not meet state or federal standards for ozone) and the proposed amendment will promote the attainment or maintenance of such air quality standards; and

WHEREAS, the AQMD Governing Board has determined that the socioeconomic impact assessment for proposed Rule 1113 - Architectural Coatings, is consistent with the March 17, 1989 and October 14, 1994 Board Socioeconomic Resolution for rule adoption; and

WHEREAS, the AQMD Governing Board has determined that the socioeconomic impact assessment is consistent with the provisions of Health and Safety Code Sections 40440.8, 40728.5 and 40920.6; and

WHEREAS, the AQMD Governing Board has determined that the proposed amendments to Rule 1113 - Architectural Coatings will result in increased costs to industry, yet are considered cost effective with a cost effectiveness as described in the socioeconomic impact assessment; and

WHEREAS, Proposed Amended Rule 1113 - Architectural Coatings is a control measure in the 1997 AQMP; and

WHEREAS, the May 1999 socioeconomic impact assessment further presents incremental cost effectiveness data between CEQA alternatives and the proposed rule; and

WHEREAS, the AQMD Governing Board has actively considered the May 1999 socioeconomic impact assessment and has made a good faith effort to minimize such impacts; and

WHEREAS, the proposed amendments to Rule 1113 - Architectural Coatings helps achieve the maximum feasible emission reduction of VOCs from the various coating categories, which is estimated to be up to 21.8 tons/day, and that even after considering the socioeconomic impact assessment, the adoption of such amendments is necessary for achieving the federal and state standards for ozone and for implementing the AQMP; and

WHEREAS, a public hearing has been properly noticed in accordance with all provisions of Health and Safety Code, Section 40725; and

WHEREAS, the AQMD Governing Board has held a public hearing in accordance with all provisions of law; and

WHEREAS, the AQMD specifies the Director of Rule 1113 as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of this proposed amendment is based, which are located at the South Coast Air Quality Management District, 21865 E. Copley Drive, Diamond Bar, California.

WHEREAS the Board directed AQMD staff to conduct a study to further assess the feasibility of developing and implementing a seasonal control program, where emissions from the use of architectural coatings are shifted to the non-ozone season, as well as assess any potential impact on toxic emissions and PM10 air quality, and that staff's assessment concluded that a seasonal control program is infeasible. The assessment was conducted as part of the 1999 AQMP alternative analysis.

WHEREAS, the AQMD Governing Board directs staff to conduct an audit of the Averaging Compliance Option no later than January 1, 2006; and

NOW, THEREFORE BE IT RESOLVED that the AQMD Governing Board does hereby approve the written responses to the comments to the draft SEA, and certify the Final SEA for Proposed Amended Rule 1113 - Architectural Coatings, which was completed in compliance with CEQA and Rule 110 provisions; and find that the Final SEA was presented to the AQMD Governing Board, whose members reviewed, considered, and approved the information therein prior to acting on Proposed Amended Rule 1113 - Architectural Coatings; and

BE IT FURTHER RESOLVED that the Board directs AQMD staff to work with CARB and USEPA to expeditiously amend the State Implementation Plan ("SIP") if the technology assessments result in the need to amend the future VOC limits for coatings included in the technology assessments, and to work with the USEPA to establish an administrative method of reporting in Title V permits, rules which have been amended but for which amendments have not yet been approved in the SIP without a finding of non-compliance due to following the amended rules.

BE IT FURTHER RESOLVED that the Board directs AQMD staff to work with industry and other stakeholders on assessing reactivity of architectural coatings. This analysis should include assessing the availability and reactivity of individual VOC species, under varying NOx conditions, as well as further development and refinement of the modeling assumptions for reactivity. The data gathered should be taken into consideration for a reactivity-based architectural coatings control strategy, if feasible.

BE IT FURTHER RESOLVED that the Board directs AQMD staff to continue to work with the Essential Public Service Agencies and industry in conducting the technical assessments initiated, and utilize these assessments for future technology assessments required in proposed amended Rule 1113.

BE IT FURTHER RESOLVED, that the AQMD Governing Board does hereby vacate, pursuant to the authority granted by law, Rule 1113 - Architectural Coatings, as amended on May 14, 1999.

BE IT FURTHER RESOLVED, that the AQMD Governing Board does hereby amend, pursuant to the authority granted by law, Rule 1113 - Architectural Coatings, as set forth in the attached, and incorporated herein by this reference.

Attachment

DATE:____________ ______________________________

CLERK OF THE BOARD

A T T A C H M E N T F

PROPOSED AMENDED RULE 1113 - ARCHITECTURAL COATINGS

Staff has made proposed rule changes to the adopted July 20, 2001 version of Rule 1113. Strikeouts (~~strikeout~~) are deletions of language adopted in the November 8, 1996 version of Rule 1113. The proposed amendments are indicated by underline (<u>underline</u>).

Additional changes in rule language made after the Set Hearing are formatted as follows:
New Additions to Rule Language   <u>Double Underline</u>

(Adopted Sept. 2, 1977)(Amended Dec. 2, 1977)(Amended Feb. 3, 1978)
(Amended Sept. 5, 1980)(Amended Apr. 3, 1981)(Amended July 3, 1981)
(Amended by California Air Resources Board Oct. 21, 1981)
(Amended Aug. 5, 1983)(Amended Mar. 16, 1984)(Amended Aug. 2, 1985)
(Amended Nov. 1, 1985)(Amended Feb. 6, 1987)(Amended Jan. 5, 1990)
(Amended Feb. 2, 1990)(Amended Nov. 2, 1990)(Amended Dec. 7, 1990)
(Amended Sept. 6, 1991)(Amended March 8, 1996)(Amended August 9, 1996)
(Amended November 8, 1996)(Amended May 14, 1999; Vacated)
(Amended July 20, 2001)
PAR – 1113 December 6, 2002

PROPOSED AMENDED RULE 1113 - ARCHITECTURAL COATINGS

(a) Applicability

This rule is applicable to any person who supplies, sells, offers for sale, or manufactures any architectural coating for use in the District that is intended to be field applied to stationary structures or their appurtenances, and to mobile homes, pavements or curbs; as well as any person who applies or solicits the application of any architectural coating within the District. The purpose of this rule is to limit the VOC content of architectural coatings used in the District or to allow the averaging of such coatings, as specified, so their actual emissions do not exceed the allowable emissions if all the averaged coatings had complied with the specified limits.

(b) Definitions

For the purpose of this rule, the following definitions shall apply:

(1) AEROSOL COATING PRODUCT means a pressurized coating product containing pigments or resins that dispenses product ingredients by means of a propellant, and is packaged in a disposable can for hand-held application, or for use in specialized equipment for ground marking and traffic marking applications.

(2) APPURTENANCES are accessories to a stationary structure, including, but not limited to: hand railings, cabinets, bathroom and kitchen fixtures, fences, rain-gutters and down-spouts, window screens, lamp-posts, heating and air conditioning equipment, other mechanical equipment, large fixed stationary tools, signs, motion picture and television production sets, and concrete forms.

(3) ARCHITECTURAL COATINGS are any coatings applied to stationary structures and their appurtenances, to mobile homes, to pavements, or to curbs.

(4) BELOW-GROUND WOOD PRESERVATIVES are wood preservatives formulated to protect below-ground wood.

(5) BITUMINOUS COATING MATERIALS are black or brownish coating materials, soluble in carbon disulfide, consisting mainly of hydrocarbons and which are obtained from natural deposits, or as residues from the distillation of crude petroleum oils, or of low grades of coal.

(6) BITUMINOUS ROOF PRIMERS are primers formulated for or applied to roofing that incorporate bituminous coating materials.

(7) BOND BREAKERS are coatings formulated for or applied between layers of concrete to prevent the freshly poured top layer of concrete from bonding to the substrate over which it is poured.

(8) CLEAR BRUSHING LACQUERS are clear wood finishes, excluding clear lacquer sanding sealers, formulated with nitrocellulose or synthetic resins to dry by solvent evaporation without chemical reaction and to provide a solid, protective film, which are intended exclusively for application by brush, and which are labeled as specified in paragraph (d)(7).

(9) CLEAR WOOD FINISHES are clear and semi-transparent coatings, including lacquers and varnishes, applied to wood substrates to provide a transparent or translucent solid film.

(10) COATING is a material which is applied to a surface in order to beautify, protect, or provide a barrier to such surface.

(11) COLORANTS are solutions of dyes or suspensions of pigments.

(12) CONCRETE-CURING COMPOUNDS are coatings formulated for or applied to freshly poured concrete to retard the evaporation of water.

(13) DRY-FOG COATINGS are coatings which are formulated only for spray application so that when sprayed, overspray droplets dry before falling on floors and other surfaces.

(14) EXEMPT COMPOUNDS (See Rule 102-Definition of Terms.)

(15) FIRE-PROOFING EXTERIOR COATINGS are opaque coatings formulated to protect the structural integrity of outdoor steel and other outdoor construction materials and listed by Underwriter's Laboratories, Inc. for the fire protection of steel.

(16) FIRE-RETARDANT COATINGS are coatings labeled and formulated to retard ignition and flame spread, that has been fire tested and rated by a testing agency approved by building code officials for use in bringing building and construction materials into compliance with federal, state and

local building code requirements. The fire-retardant coating and the testing agency must be approved by building code officials. The fire-retardant coating shall be tested in accordance with ASTM Test Method E 84-99, incorporated by reference in paragraph (e)(4) or listed by Underwriter's Laboratories, Inc. as fire-retardant coatings with a flame spread index of less than 25.

(17) FLAT COATINGS are coatings that register a gloss of less than 15 on an 85-degree meter or less than 5 on a 60-degree meter.

(18) FLOOR COATINGS are opaque coatings that are formulated for or applied to flooring; including but not limited to decks, porches, gymnasiums, and bowling alleys, but do not include Industrial Maintenance Coatings.

(19) FORMULATION DATA is the actual product recipe which itemizes all the ingredients contained in a product including VOCs and the quantities thereof used by the manufacturer to create the product.

(20) GRAMS OF VOC PER LITER OF COATING, LESS WATER AND LESS EXEMPT COMPOUNDS, is the weight of VOC per combined volume of VOC and coating solids and can be calculated by the following equation:

$$\text{Grams of VOC per Liter of Coating, Less Water and Less Exempt Compounds} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Where:

	W_s	=	weight of volatile compounds in grams
	W_w	=	weight of water in grams
	W_{es}	=	weight of exempt compounds in grams
	V_m	=	volume of material in liters
	V_w	=	volume of water in liters
	V_{es}	=	volume of exempt compounds in liters

For coatings that contain reactive diluents, the Grams of VOC per Liter of Coating, Less Water and Less Exempt Compounds, shall be calculated by the following equation:

$$\text{Grams of VOC per Liter of Coating, Less Water and Less Exempt Compounds} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Where: W_s = weight of volatile compounds emitted during curing, in grams

W_w = weight of water emitted during curing, in grams
W_{es} = weight of exempt compounds emitted during curing, in grams
V_m = volume of the material prior to reaction, in liters
V_w = volume of water emitted during curing, in liters
V_{es} = volume of exempt compounds emitted during curing, in liters

(21) GRAMS OF VOC PER LITER OF MATERIAL is the weight of VOC per volume of material and can be calculated by the following equation:

$$\text{Grams of VOC per Liter of Material} = \frac{W_s - W_w - W_{es}}{V_m}$$

Where:
W_s = weight of volatile compounds in grams
W_w = weight of water in grams
W_{es} = weight of exempt compounds in grams
V_m = volume of the material in liters

(22) GRAPHIC ARTS COATINGS (Sign Paints) are coatings formulated for hand-application by artists using brush or roller techniques to indoor and outdoor signs (excluding structural components) and murals, including lettering enamels, poster colors, copy blockers, and bulletin enamels.

(23) HIGH-TEMPERATURE INDUSTRIAL MAINTENANCE COATINGS are industrial maintenance coatings formulated for or applied to substrates exposed continuously or intermittently to temperatures above 400 degrees Fahrenheit.

(24) INDUSTRIAL MAINTENANCE COATINGS are coatings, including primers, sealers, undercoaters, intermediate coatings and topcoats, formulated for or applied to substrates, including floors, that are exposed to one or more of the following extreme environmental conditions:

(A) immersion in water, wastewater, or chemical solutions (aqueous and non-aqueous solutions), or chronic exposure of interior surfaces to moisture condensation;

(B) acute or chronic exposure to corrosive, caustic or acidic agents, or similar chemicals, chemical fumes, chemical mixtures, or solutions;

(C) repeated exposure to temperatures in excess of 250 degrees Fahrenheit;

(D) repeated heavy abrasion, including mechanical wear and repeated scrubbing with industrial solvents, cleaners, or scouring agents; or

(E) exterior exposure of metal structures.

Effective January 1, 2004, Industrial Maintenance Coatings are not for residential use or for use in areas of industrial, commercial, or institutional facilities not exposed to such extreme environmental conditions, such as office space and meeting rooms.

(25) JAPANS/FAUX FINISHING COATINGS are glazes designed for wet-in-wet techniques used as a stain or glaze to create artistic effects, including but not limited to, dirt, old age, smoke damage, and simulated marble and wood grain.

(26) LACQUERS are clear or pigmented wood finishes, including clear lacquer sanding sealers, formulated with nitrocellulose or synthetic resins to dry by evaporation without chemical reaction.

(27) LOW-SOLIDS COATINGS are coatings containing one pound or less of solids per gallon of material.

(28) MAGNESITE CEMENT COATINGS are coatings formulated for or applied to magnesite cement decking to protect the magnesite cement substrate from erosion by water.

(29) MASTIC COATINGS are coatings formulated to cover holes and minor cracks and to conceal surface irregularities, and applied in a thickness of at least 10 mils (dry, single coat).

(30) METALLIC PIGMENTED COATINGS are coatings containing at least 0.4 pounds per gallon (48 grams/liter) of coating as applied of elemental metallic pigment (excluding zinc), mica particles or any combination of metallic pigments and mica particles.

(31) MULTI-COLOR COATINGS are coatings which exhibit more than one color when applied and which are packaged in a single container and applied in a single coat.

(32) NONFLAT COATINGS are coatings that register a gloss of 5 or greater on a 60 degree meter and a gloss of 15 or greater on an 85 degree meter.

(33) POST-CONSUMER COATINGS are finished coatings that would have been disposed of in a landfill, having completed their usefulness to a consumer, and does not include manufacturing wastes.

(34) PRE-TREATMENT WASH PRIMERS are coatings which contain a minimum of 1/2 percent acid, by weight, applied directly to bare metal surfaces to provide necessary surface etching.

(35) PRIMERS are coatings applied to a surface to provide a firm bond between the substrate and subsequent coats.

(36) QUICK-DRY Enamels are non-flat coatings which comply with the following:

(A) Shall be capable of being applied directly from the container by brush or roller under normal conditions, normal conditions being ambient temperatures between 60°F and 80°F;

(B) When tested in accordance with ASTM D 1640 they shall: set-to-touch in two hours or less, dry-hard in eight hours or less, and be tack-free in four hours or less by the mechanical test method; and

(C) Shall have a 60° dried film gloss of no less than 70.

(37) QUICK-DRY PRIMERS, SEALERS, AND UNDERCOATERS are primers, sealers, and undercoaters which are intended to be applied to a surface to provide a firm bond between the substrate and subsequent coats and which are dry-to-touch in one-half hour and can be recoated in two hours (ASTM D 1640).

(38) REACTIVE DILUENT is a liquid which is a VOC during application and one in which, through chemical and/or physical reaction, such as polymerization, becomes an integral part of the coating.

(39) RECYCLED COATINGS are coatings formulated such that 50 percent or more of the total weight consists of secondary and post-consumer coatings and 10 percent or more of the total weight consists of post-consumer coatings.

(40) ROOF COATINGS are coatings formulated for application to exterior roofs and for the primary purpose of preventing penetration of the substrate by water, or reflecting heat and ultraviolet radiation, and do not include roof coatings, qualifying as metallic pigmented coatingsor that fall under the category of bituminous roof primers.

(41) RUST PREVENTATIVE COATINGS are coatings formulated for use in preventing the corrosion of metal surfaces in residential and commercial situations.

(42) SANDING SEALERS are clear wood coatings formulated for or applied to bare wood for sanding and to seal the wood for subsequent application of coatings. To be considered a sanding sealer a coating must be clearly labeled as such.

(43) SEALERS are coatings applied to either block materials from penetrating into or leaching out of a substrate, to prevent subsequent coatings from being absorbed by the substrate, or to prevent harm to subsequent coatings by materials in the substrate.

(44) SECONDARY (REWORK) COATINGS are fragments of finished coatings or finished coatings from a manufacturing process that has converted resources into a commodity of real economic value, but does not include excess virgin resources of the manufacturing process.

(45) SHELLACS are clear or pigmented coatings formulated solely with the resinous secretions of the lac beetle (laccifer lacca), thinned with alcohol, and formulated to dry by evaporation without a chemical reaction.

(46) SOLICIT is to require for use or to specify, by written or oral contract.

(47) SPECIALTY PRIMERS are coatings formulated for or applied to a substrate to seal fire, smoke or water damage; or to condition excessively chalky surfaces. An excessively chalky surface is one that is defined as having chalk rating of four or less as determined by ASTM D-4214 – Photographic Reference Standard No. 1 or the Federation of Societies for Coatings Technology "Pictorial Standards for Coatings Defects".

(48) STAINS are opaque or semi-transparent coatings which are formulated to change the color but not conceal the grain pattern or texture.

(49) SWIMMING POOL COATINGS are coatings specifically formulated for or applied to the interior of swimming pools and to resist swimming pool chemicals.

(50) SWIMMING POOL REPAIR COATINGS are chlorinated, rubber-based coatings used for the repair and maintenance of swimming pools over existing chlorinated, rubber-based coatings.

(51) TINT BASE is an architectural coating to which colorants are added.

(52) TRAFFIC COATINGS are coatings formulated for or applied to public streets, highways, and other surfaces including, but not limited to, curbs, berms, driveways, and parking lots.

(53) UNDERCOATERS are coatings formulated for or applied to substrates to provide a smooth surface for subsequent coats.

(54) VARNISHES are clear wood finishes formulated with various resins to dry by chemical reaction on exposure to air.

(55) VOLATILE Organic COMPOUND (VOC) See Rule 102.

(56) WATERPROOFING SEALERS are coatings which are formulated for the primary purpose of preventing penetration of porous substrates by water.

(57) WATERPROOFING CONCRETE/MASONRY SEALERS are clear or pigmented sealers that are formulated for sealing concrete and masonry to provide resistance against water, alkalis, acids, ultraviolet light, and staining.

(58) WOOD PRESERVATIVES are coatings formulated to protect wood from decay or insect attack by the addition of a wood preservative chemical registered by the California Environmental Protection Agency.

(59) ZINC-RICH INDUSTRIAL MAINTENANCE PRIMERS are primers formulated to contain a minimum of 65 percent metallic zinc powder (zinc dust) by weight of total solids for application to metal substrates.

(c) Requirements

(1) Except as provided in paragraphs (c)(2), (c)(3), (c)(4), and specified coatings averaged under (c)(6), no person shall supply, sell, offer for sale, manufacture, blend, or repackage any architectural coating for use in the District which, at the time of sale or manufacture, contains more than 250 grams of VOC per liter of coating (2.08 pounds per gallon), less water, less exempt compounds, and less any colorant added to tint bases, and no person shall apply or solicit the application of any architectural coating within the District that exceeds 250 grams of VOC per liter of coating as calculated in this paragraph.

(2) Except as provided in paragraphs (c)(3), (c)(4), and designated coatings averaged under (c)(6), no person shall supply, sell, offer for sale, manufacture, blend, or repackage, for use within the District, any architectural coating listed in the Table of Standards which contains VOC (excluding any colorant added to tint bases) in excess of the corresponding VOC limit specified in the table, after the effective date specified, and no

person shall apply or solicit the application of any architectural coating within the District that exceeds the VOC limit as specified in this paragraph. No person shall apply or solicit the application within the District of any industrial maintenance coatings for residential use; or of any rust-preventative coating for industrial use, unless such a rust preventative coating complies with the Industrial Maintenance Coating VOC limit specified in the Table of Standards.

TABLE OF STANDARDS
VOC LIMITS

Grams of Voc Per Liter of Coating,
Less Water and Less Exempt Compounds

COATING	Limit*	Effective 1/1/1998	Effective 1/1/1999	Effective 7/1/2001	Effective 1/1/2003	Effective 1/1/2004	Effective 1/1/2005	Effective 7/1/2006	Effective 7/1/2008
Bond Breakers	350								
Clear Wood Finishes									
Varnish	350								
Sanding Sealers	350								
Lacquer	680	550					275		
Clear Brushing Lacquer	680						275		
Concrete-Curing Compounds	350								
Dry-Fog Coatings	400								
Fire-proofing Exterior Coatings	450		350						
Fire-Retardant Coatings									
Clear	650								
Pigmented	350								
Flats	250			100					50
Floor Coatings	420				100			50	
Graphic Arts (Sign) Coatings	500								
Industrial Maintenance (IM) Coatings	420					250		100	
High Temperature IM Coatings**					420				
Zinc-Rich IM Primers	420				340			100	
Japans/Faux Finishing Coatings	700		350						
Magnesite Cement Coatings	600		450						
Mastic Coatings	300								
Metallic Pigmented Coatings	500								
Multi-Color Coatings	420	250							
Non-Flat Coatings	250				150			50	
Pigmented Lacquer	680	550					275		
Pre-Treatment Wash Primers	780				420				
Primers, Sealers, and Undercoaters	350				200			100	
Quick-Dry Enamels	400				250			50	
Quick-Dry Primers, Sealers, and Undercoaters	350***				200			100	
Recycled Coatings					250				
Roof Coatings	300				250				
Roof Primers, Bituminous	350				350				
Rust Preventative Coatings	420				400			100	
Shellac									
Clear	730								
Pigmented	550								
Specialty Primers	350							100	
Stains	350				250				
Swimming Pool Coatings									
Repair	650				340				

COATING	Limit*	Effective 1/1/1998	Effective 1/1/1999	Effective 7/1/2001	Effective 1/1/2003	Effective 1/1/2004	Effective 1/1/2005	Effective 7/1/2006	Effective 7/1/2008
Other	340								
Traffic Coatings	250	150							
Waterproofing Sealers	400				250				
Waterproofing Concrete/Masonry Sealers	400								
Wood Preservatives									
Below-Ground	350								
Other	350								

* The specified limits remain in effect unless revised limits are listed in subsequent columns in the Table of Standards

<u>** The National VOC Standard at 650 g/l is applicable until 1/1/2003</u>

<u>*** The specified limit applies unless the manufacturer submits a report pursuant to Rule 1113(g)(2)</u>

TABLE OF STANDARDS (cont.)
VOC LIMITS

Grams of VOC Per Liter of Material

COATING	Limit
Low-Solids Coating	120

(3) If anywhere on the container of any coating listed in the Table of Standards, on any sticker or label affixed thereto, or in any sales or advertising literature, any representation is made that the coating may be used as, or is suitable for use as, a coating for which a lower VOC standard is specified in the table or in paragraph (c)(1), then the lowest VOC standard shall apply. This requirement does not apply to the representation of the following coatings in the manner specified:

(A) lacquer sanding sealers, which may be recommended for use as sanding sealers in conjunction with clear lacquer topcoats;

(B) metallic pigmented coatings, which may be recommended for use as primers, sealers, undercoaters, roof coatings including bituminous roof primers, or industrial maintenance coatings;

(C) shellacs; and

(D) low-solids coatings.

(4) Any coating that is manufactured prior to the effective date of the applicable limit specified in the Table of Standards, and that has a VOC content above that limit (but not above the limit in effect on the date of manufacture), may be sold, supplied, offered for sale, or applied for up to three years after the specified effective date.

(5) All architectural coating containers used to apply the contents therein to a surface direct from said container by pouring, siphoning, brushing, rolling,

padding, ragging or other means, shall be closed when not in use. These architectural coating containers include, but should not be limited to: drums, buckets, cans, pails, trays or other application containers.

(6) Averaging Compliance Option

On or after January 1, 2001, in lieu of specific compliance with the applicable limits in the Table of Standards for floor; primers, sealers, and undercoaters; quick-dry primers, sealers, and undercoaters; quick-dry enamels; rust preventative; roof; specialty primers; stains; waterproofing sealers; industrial maintenance coatings, as well as flats and non-flats (excluding recycled coatings), manufacturers may average designated coatings such that their actual cumulative emissions from the averaged coatings are less than or equal to the cumulative emissions that would have been allowed under those limits over a compliance period not to exceed one year. Such manufacturers must also comply with the averaging provisions contained in Appendix A, as well as maintain records and make these records available for inspection, for at least three years after the end of the compliance period.

(d) Administrative Requirements

(1) Containers for all coatings subject to this rule shall display the date of manufacture of the contents or a code indicating the date of manufacture. The manufacturers of such coatings shall file with the Executive Officer of the District and the Executive Officer of the Air Resources Board an explanation of each code.

(2) Containers for all coatings subject to the requirements of this rule shall carry a statement of the manufacturer's recommendation regarding thinning of the coating. This requirement shall not apply to the thinning of architectural coatings with water. The recommendation shall specify that the coating is to be employed without thinning or diluting under normal environmental and application conditions, unless any thinning recommended on the label for normal environmental and application conditions does not cause a coating to exceed its applicable standard.

(3) Each container of any coating subject to this rule shall display the maximum VOC content of the coating, as supplied, and after any thinning as recommended by the manufacturer. The VOC content of low-solids coatings shall be displayed as grams of VOC per liter of material (excluding any colorant added to the tint bases) and the VOC content of any other coating

shall be displayed as grams of VOC per liter of coating (less water and less exempt compounds, and excluding any colorant added to tint bases). VOC content displayed may be calculated using product formulation data, or may be determined using the test method in subdivision (e).

(4) After January 1, 1998, the coating container label or container for quick-dry primers, sealers, and undercoaters and quick-dry enamels shall include the words "Quick-Dry" or shall list the following:

(A) The recoat time for quick-dry primers, sealers, and undercoaters, or

(B) The dry-hard time for quick-dry enamels.

Containers and container labels shall not contain the words "Quick-Dry" unless the material meets the dry times specified in the respective definitions or the material complies with the respective general VOC limit for enamels or primers, sealers, and undercoaters.

(5) The labels of all rust preventative coatings shall include the statement "For Metal Substrates Only" prominently displayed, effective January 1, 2003.

(6) Effective January 1, 2003, the labels of all specialty primers shall prominently display one or more of the following descriptions:

(A) For Fire-damaged substrates.

(B) For Smoke-damaged substrates.

(C) For Water-Damaged substrates.

(D) For Excessively Chalky Substrates.

(7) The labels of all clear brushing lacquers shall include the statements "For brush applications only" and "This product must not be thinned or sprayed", prominently displayed, effective January 1, 2002 until January 1, 2005.

(8) Each manufacturer of clear brushing lacquers shall, on or before April 1 of each calendar year beginning in the year 2002 submit an annual report to the Executive Officer until April 1, 2006. The report shall specify the number of gallons of clear brushing lacquers sold in the District during the preceding calendar year, and shall describe the method used by the manufacturer to calculate such sales.

(9) A manufacturer, distributor, or seller of a coating meeting the requirements of this rule, who supplies that coating to a person who applies it in a non-compliant manner, shall not be liable for that non-compliant use, unless the manufacturer, distributor, or seller knows that the supplied coating would be used in a non-compliant manner.

(e) Test Methods

For the purpose of this rule, the following test methods shall be used

(1) VOC Content of Coatings

The VOC content of coatings subject to the provisions of this rule shall be determined by:

(A) The United States Environmental Protection Agency (USEPA) Reference Test Method 24 (Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings, Code of Federal Regulations Title 40, Part 60, Appendix A) with the exempt compounds' content determined by Method 303 (Determination of Exempt Compounds) in the South Coast Air Quality Management District's (SCAQMD) "Laboratory Methods of Analysis for Enforcement Samples" manual, or

(B) Method 304 [Determination of Volatile Organic Compounds (VOC) in Various Materials] in the SCAQMD's "Laboratory Methods of Analysis for Enforcement Samples" manual.

(C) Exempt Perfluorocarbons

The following classes of compounds:

cyclic, branched, or linear, completely fluorinated alkanes

cyclic, branched, or linear, completely fluorinated ethers with no unsaturations

cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations

sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine

will be analyzed as exempt compounds for compliance with subdivision (c), only when manufacturers specify which individual compounds are used in the coating formulations. In addition, the manufacturers must identify the USEPA, ARB, and SCAQMD approved test methods, which can be used to quantify the amount of each exempt compound.

(2) Acid Content of Coatings

The acid content of a coating subject to the provisions of this rule shall be determined by ASTM Test Method D 1613-85 (Acidity in Volatile Solvents and Chemical Intermediates Used in Paint, Varnish, Lacquer, and Related Products).

(3) Metal Content of Coatings

The metallic content of a coating subject to the provisions of this rule shall be determined by Method 311 (Determination of Percent Metal in Metallic Coatings by Spectrographic Method) in the SCAQMD's "Laboratory Methods of Analysis for Enforcement Samples" manual.

(4) Flame Spread Index

The flame spread index of a fire-retardant coating subject to the provisions of this rule shall be determined by ASTM Test Method E 84-99 (Standard Test Method for Surface Burning Characteristics of Building Materials) after application to an organic or inorganic substrate, based on the manufacturer's recommendations.

(5) Drying Times

The set-to-touch, dry-hard, dry-to-touch, and dry-to-recoat times of a coating subject to the provisions of this rule shall be determined by ASTM Test Method D 1640 (Standard Test Methods for Drying, Curing, or Film Formation of Organic Coatings at Room Temperature). The tack-free time of a coating subject to the provisions of this rule shall be determined by ASTM Test Method D 1640, according to the Mechanical Test Method.

(6) Gloss Determination

The gloss shall be determined by ASTM Test Method D 523 (Specular Gloss).

(7) Equivalent Test Methods

Other test methods determined to be equivalent after review by the staffs of the District, the California Air Resources Board, and the USEPA, and approved in writing by the District Executive Officer may also be used.

(8) Multiple Test Methods

When more than one test method or set of test methods are specified for any testing, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of the rule.

(9) All test methods referenced in this subdivision shall be the version most recently approved by the appropriate governmental entities.

(f) Technology Assessment

The Executive Officer shall conduct a technology assessment for the future VOC limit for the following coatings as specified in paragraph (c)(2).

(1) Flat coatings by July 1, 2007.

(2) Lacquers by January 1, 2004.

(3) Nonflats; primers, sealers, and undercoaters; quick-dry primers, sealers, and undercoaters; quick-dry enamels; waterproofing sealers; stains; floor; rust preventative; and industrial maintenance coatings by July 1, 2005.

In conducting the above technology assessments, the Executive Officer shall consider any applicable future California Air Resources Board surveys on architectural coatings.

After each technology assessment, the Executive Officer shall report to the Governing Board as to the appropriateness of maintaining the future VOC limit.

The Executive Officer shall conduct a study to further assess reactivity of architectural coatings.

(g) Exemptions

(1) The provisions of this rule shall not apply to:

(A) architectural coatings in containers having capacities of one quart or less, provided that the manufacturer shall submit an annual report to the Executive Officer within three months of the end of each calendar year. The report shall contain information as required by the Executive Officer to monitor the use of the small container exemption. The loss of this exemption due to the failure of the manufacturer to submit an annual report shall apply only to the manufacturer; or

(B) architectural coatings sold in this District for shipment outside of this District or for shipment to other manufacturers for repackaging; or

(C) emulsion type bituminous pavement sealers; or

(D) aerosol coating products.

(E) Use of stains and lacquers in all areas within the District at an elevation of 4,000 feet or greater above sea level.

(2) Until January 1, 2003, architectural coatings recommended by the manufacturer for use solely as quick-dry primers, sealers and undercoaters, need not comply with the provisions of subdivision (c), so long as the manufacturer submits an annual report to the Executive Officer within three months of the end of each calendar year reporting the number of gallons of coatings sold in California under this exemption.

(3) Notwithstanding the provisions of paragraph (c)(2), a person or facility may add up to 10 percent by volume of VOC to a lacquer to avoid blushing of the finish during days with relative humidity greater than 70 percent and temperature below 65 degrees Fahrenheit, at the time of application provided that:

(A) the coating is not applied from April 1 to October 31 of any year;

(B) the coating contains acetone and no more than 550 grams of VOC per liter of coating, less water and exempt compounds, prior to the addition of VOC.

(4) The January 1, 2005 VOC limit for lacquers shall not be applicable until January 1, 2007 and the July 1, 2008 VOC limit for flat coatings shall not be applicable to any manufacturer which meets all of the following criteria:

(A) The total gross annual receipts are $2,000,000 or less, and

(B) The total number of employees is 100 or less, and

(C) The manufacturer requesting this exemption files a written request with the Executive Officer annually which includes, but is not limited to:

(i) The total gross annual receipts for each of the last three years.

(ii) The total number of employees for each of the last three years.

For the purposes of determining the total gross annual receipts and the total number of employees, a manufacturer shall include data from all facilities (both within and outside of the District) which they own, operate, have an ownership interest, or are legally affiliated. If a manufacturer exceeds the criteria specified in subparagraphs (g)(4)(A) or (g)(4)(B) any time after the initial request is filed with the Executive Officer, this exemption shall be immediately terminated, the manufacturer shall forfeit any future eligibility for this exemption, and the manufacturer shall be considered in violation of this rule for each and every day that lacquers or flat coatings which do not comply with the respective VOC limit in the Table of Standards are supplied, sold, or offered for sale within the District. The loss of this exemption due to the manufacturer exceeding the criteria in subparagraphs (g)(4)(A) or (g)(4)(B) shall apply only to the manufacturer.

(5) Manufacturers of recycled coatings must submit a letter to the Executive Officer certifying their status as a Recycled Paint Manufacturer. The manufacturer shall submit an annual report to the Executive Officer within

three months of the end of the calendar year. The report shall include for each recycled coating, gallons repackaged and distributed in the District.

(6) Manufacturers of rust preventative coatings shall submit an annual report to the Executive Officer within three months of the end of the calendar year. The report shall include for each rust preventative coating, the number of gallons sold in the District.

(7) The provisions of paragraph (c) shall not apply to facilities which apply coatings to test specimens for purposes of research and development of those coatings.

(8) The July 1, 2006 VOC limit for nonflats, primers, sealers, and undercoaters, quick-dry enamels, and rust-preventative coatings shall not be applicable until July 1, 2008 to any manufacturer which meets all of the following criteria:

(A) The total gross annual receipts are $5,000,000 or less, and

(B) The total number of employees is 100 or less, and

(C) The manufacturer requesting this exemption files a written request with the Executive Officer annually which includes, but is not limited to,

(i) The total gross annual receipts for each of the last three years.

(ii) The total number of employees for each of the last three years.

For the purposes of determining the total gross annual receipts and the total number of employees, a manufacturer shall include data from all facilities (both within and outside of the District) which they own, operate, have an ownership interest, or are legally affiliated. If a manufacturer exceeds the criteria specified in subparagraphs (g)(8)(A) or (g)(8)(B) any time after the initial request is filed with the Executive Officer, this exemption shall be immediately terminated, the manufacturer shall forfeit any future eligibility for this exemption, and the manufacturer shall be considered in violation of this rule for each and every day that nonflats, primers, sealers, and undercoaters, quick-dry enamels, and rust-preventative coatings do not comply with the respective VOC limit in the Table of Standards are supplied, sold, or offered for sale within the District. The loss of this exemption due to the manufacturer exceeding the criteria in subparagraphs (g)(8)(A) or (g)(8)(B) shall apply only to the manufacturer.

(9) Manufacturers of specialty primers shall submit an annual report to the Executive Officer within three months of the end of the calendar year. The report shall include for each specialty primer, the number of gallons sold in the District.

APPENDIX A: Averaging Provision

(A) The manufacturer shall demonstrate that actual emissions from the coatings being averaged are less than or equal to the allowable emissions, for the specified compliance period using the following equation:

$$\sum_{i=1}^{n} GiMi \leq \sum_{i=1}^{n} GiViLi$$

Where:

$\sum_{i=1}^{n} GiMi$ = Actual Emissions

$\sum_{i=1}^{n} GiViLi$ = Allowable Emissions

Gi = Total Gallons of Product (i) subject to Averaging;

Mi = Material VOC content of Product (i), as pounds per gallon; {as defined in paragraph (b)(21)}

Vi = Percent by Volume Solids and VOC in Product (i), {as defined in paragraph (b)(20)}

$$= \frac{Vm - Vw - Ves}{Vm}$$

For Non-Zero VOC Coatings:

$$= \frac{\text{Material VOC}}{\text{Coating VOC}}$$

For Zero VOC coatings:

= % solids by volume

Li = Regulatory VOC Content Limit for Product (i), as pounds per gallon; {as listed in paragraph (c)(2) Table of Standards}

The averaging is limited to coatings that are designated by the manufacturer. Any coating not designated in the averaging Program shall comply with the VOC limit in the Table of Standards. The manufacturer shall not include any quantity of coatings that it knows or should have known will not be used in the District.

In addition to the requirements specified in Section (A), a manufacturer shall not include in an Averaging Program any coating with a VOC content in excess of the maximum VOC content in effect, for that manufacturer, immediately prior to July 1, 2001 or the VOC content limits specified in the National VOC Emission Standard, whichever is less.

(B) Averaging Program (Program)

At least six months prior to the start of the compliance period, manufacturers shall submit an Averaging Program, which is subject to all the provisions of Rule 221 – Plans and Rule 306 – Plan Fees, to the Executive Officer. Averaging may not be implemented until the Program is approved in writing by the Executive Officer.

Within 45 days of submittal of a Program, the Executive Officer shall either approve, disapprove or deem the Program incomplete. The Program applicant and the Executive Officer may agree to an extension of time for the Executive Officer to take action on the Program.

(C) General Requirements

The Program shall include all necessary information for the Executive Officer to make a determination as to whether the manufacturer may comply with the averaging requirements over the specified compliance period in an enforceable manner. Such information shall include, but is not limited to, the following:

1. An identification of the contact persons, telephone numbers, and name of the manufacturer who is submitting the Program.
2. An identification of each coating that has been selected by the manufacturer for inclusion in this program that exceeds the applicable VOC limit in the Table of Standards, their VOC content specified in units of both grams of VOC per liter of coating, and grams of VOC per liter of material and the designation of the coating category.
3. A detailed demonstration showing that the projected actual emissions will not exceed the allowable emissions for a single compliance period that the Program will be in effect. In addition, the demonstration shall include VOC content information for each coating that are below the compliance limit in the Table of Standards. The demonstration shall use the equation specified in paragraph (A) of this Appendix for projecting the actual emissions and allowable emissions during each compliance period. The demonstration shall also include all VOC content levels and projected volume within the District for each coating listed in the Program during each compliance period. The requested data can be summarized in a matrix form.

4. A specification of the compliance period(s) and applicable reporting dates. The length of the compliance period shall not be more than one year nor less than six months.
5. An Identification and description of all records to be made available to the Executive Officer upon request, if different than those identified under paragraph (c)(6). Records to track volume and to demonstrate compliance shall be included. Such records may include, but are not limited to, distribution records (shipping manifests, bills of lading, etc.), point of sale receipts, invoices to local distributors, composition reports, production batch tickets, computer summaries of the data with paper records available for detailed information, and records of VOC calculations. If the type of records submitted are not specifically listed above, those records must be approved by the USEPA, ARB, and the Executive Officer before an Averaging Program can be approved.
6. An identification and description of specific records to be used in calculating emissions for the Program and subsequent reporting, and a detailed explanation as to how those records will be used by the manufacturer to verify compliance with the averaging requirements.
7. A statement, signed by a responsible party for the manufacturer, that all information submitted is true and correct, and that records will be made available to the Executive Officer upon request.

(D) Reporting Requirements

1. For every single compliance period, the manufacturer shall submit a mid-term report listing all coatings subject to averaging during the first half of the compliance period, detailed analysis of the actual and allowable emissions at the end of the mid-term, and if actual emissions exceed allowable emissions an explanation as to how the manufacturer intends to achieve compliance by the end of the compliance period. The report shall be signed by the responsible party for the manufacturer, attesting that all information submitted is true and correct. The mid-term report shall be submitted within 45 days after the midway date of the compliance period. A manufacturer may request, in writing, an extension of up to 15 days for submittal of the mid-term report.
2. Within 60 days after the end of the compliance period or upon termination of the Program, whichever is sooner, the manufacturer shall submit to the Executive Officer a final report, providing a detailed demonstration of the

balance between the actual and allowable emissions for the compliance period, an update of any identification and description of specific records used by the manufacturer to verify compliance with the averaging requirement, and any other information requested by the Executive Officer to determine whether the manufacturer complied with the averaging requirements over the specified compliance period. The report shall be signed by the responsible party for the manufacturer, attesting that all information submitted is true and correct, and that records will be made available to the Executive Officer upon request. A manufacturer may request, in writing, an extension of up to 30 days for submittal of the final report.

(E) Renewal of a Program

A Program automatically expires at the end of the compliance period. The manufacturer may request a renewal of the Program by submitting a renewal request that shall include an updated Program, meeting all applicable Program requirements. The renewal request will be considered conditionally approved until the Executive Officer makes a final decision to deny or approve the renewal request based on a determination of whether the manufacturer is likely to comply with the averaging requirements. The Executive Officer shall base such determination on all available information, including but not limited to, the mid-term and final reports of the preceding compliance period. The Executive Officer shall make a decision to deny or approve a renewal request no later than 45 days from the date of the final report submittal, unless the manufacturer and the Executive Officer agree to an extension of time for the Executive Officer to take action on the renewal request.

(F) Modification of a Program

A manufacturer may request a modification of the Program at any time prior to the end of the compliance period. The Executive Officer shall take action to approve or disapprove the modification request no longer than 45 days from the date of its submittal. No modification of the compliance period shall be allowed. A Program need not be modified to specify additional coatings to be averaged that are below the applicable VOC limits.

(G) Termination of a Program

1. A manufacturer may terminate its Program at any time by filing a written notification to the Executive Officer. The filing date shall be considered the effective date of the termination, and all other provisions of this rule including the VOC limits shall immediately thereafter apply. The manufacturer shall also submit a final report 60 days after the termination date. Any exceedance of the actual emissions over the allowable emissions over the period that the Program was in effect shall constitute a separate violation for each day of the entire compliance period.
2. The Executive Officer may terminate a Program if any of the following circumstances occur:
   - (a) The manufacturer violates the requirements of the approved Program, and at the end of the compliance period, the actual emissions exceed the allowable emissions.
   - (b) The manufacturer demonstrates a recurring pattern of violations and has consistently failed to take the necessary steps to correct those violations.

(H) Change in VOC Limits

If the VOC limits of a coating listed in the Program are amended such that its effective date is less than one year from the date of adoption, the affected manufacturer may base its averaging on the prior limits of that coating until the end of the compliance period immediately following the date of adoption.

(I) Labeling

Each container of any coating that is included in averaging program, and that exceeds the applicable VOC limit in the Table of Standards shall display the following statement: "This product is subject to the averaging provisions of SCAQMD Rule 1113". A symbol specified by the Executive Officer may be used as a substitute.

(J) Violations

The exceedance of the allowable emissions for any compliance period shall constitute a separate violation for each day of the compliance period. However, any violation of the requirements of the Averaging Provision of this rule, which the violator can demonstrate, to the Executive Officer, did not cause or allow the emission of an air contaminant and was not the result of negligent or knowing activity may be considered a minor violation (pursuant to District Rule 112).

(K) Sell Through Provision

A coating that is included in an approved Averaging Program that does not comply with the specified limit in the Table of Standards may be sold, supplied, offered for sale, or applied for up to three years after the end of the compliance period specified in the approved Averaging Program. This section of Appendix A does not apply to any coating that does not display on the container either the statement: “This product is subject to architectural coatings averaging provisions of the SCAQMD Rule 1113” or a designated symbol specified by the Executive Officer of the SCAQMD.

A T T A C H M E N T G

STAFF REPORT

Additional changes made after the Set Hearing are formatted as follows:

Strikeouts (~~strikeout~~) are deletions

Underlining (underline) are additions to the Staff Report.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

STAFF REPORT FOR

PROPOSED AMENDED RULE 1113 – ARCHITECTURAL COATINGS

Dated: December 6, 2002

Deputy Executive Officer
Planning, Rule Development, and Area Sources
Elaine Chang, DrPH

Assistant Deputy Executive Officer
Planning, Rule Development, and Area Sources
Laki Tisopulos, Ph.D., P.E.

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	Frances Keeler	Senior Deputy District Counsel

TABLE OF CONTENTS

ACRONYMS USED

ACTF	Architectural Coatings Task Force
AIM	Architectural/Industrial Maintenance Coatings
APCD	Air Pollution Control District
AQMD	South Coast Air Quality Management District
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology as required by AQMD Regulation XIII - New Source Review
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CFC	Chlorofluorocarbon
CFMA	California Furniture Manufacturers Association
CTAC	Customer Technology Application Center
CTG	Control Techniques Guideline
DIY	Do-It-Yourself
EL RAP	Environmental Legislative & Regulatory Advocacy Program
FIP	Federal Implementation Plan
G/L	Grams per liter, less water and less exempt solvents
IDLH	Immediate Danger to Life or Health
MEK	Methyl Ethyl Ketone
MSDS	Material Safety Data Sheet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NOx	Oxides of Nitrogen
NPCA	National Paint & Coatings Association
PDCA	Painting & Decorating Contractors of America
PM_{10}	Particulate Matter, less than 10 microns
PPM	Parts Per Million
RECLAIM	Regional Clean Air Incentives Market
REG NEG	Regulatory Negotiations
SARA	Superfund Amendments and Reauthorization Act
SCAB	South Coast Air Basin

SCM	Suggested Control Measure
SIC	Standard Industrial Classification
TiO_2	Titanium Dioxide
TRG	Technical Review Group
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

C H A P T E R I

BACKGROUND

I. BACKGROUND

Architectural and Industrial Maintenance (AIM) coatings are one of the largest non-mobile sources of VOC emissions in the AQMD -- larger than petroleum refining, larger than petroleum marketing, larger than degreasing and dry cleaning combined, and larger than the combined VOC emissions from the 950 largest VOC-emitting facilities. It has been estimated that 25 percent of all hydrocarbons used as solvents in the United States (293 million gallons in 1992) are used in all paints and coatings, including AIM coatings.[1]

VOC emissions cause the formation of ozone and PM_{10} (particulate matter less than 10 microns in size), two pollutants that exceed the state and national ambient air quality standards. They are the AQMDs most serious regional air quality problems and the most difficult to reduce to healthful levels.

VOCs react photochemically with oxides of nitrogen (NOx) to form ozone. Ozone is a strong oxidizer that irritates the human respiratory system and damages plant life and property. VOCs also react in the atmosphere to form PM_{10}, a pollutant which adversely affects human health and limits visibility. Because these small particulates penetrate into the deepest regions of the lung, they affect pulmonary function and have even been linked to increased deaths.

Several health-related studies conducted over the past five years show a significant increase in hospital emergency room visits during warm and smoggy days. The researchers believe this increase is a direct result of higher ozone and PM_{10} concentrations. The "Air Pollution Health Impacts: Recent Findings, Implications, Dieselization, and Policy Initiatives" was a two-day symposium held at the District in November 1997, and included the presentation of numerous papers correlating increased hospital visits with increases in fine particulates and ozone.

II. PRIOR AMENDMENTS

The 1997 and 1994 Air Quality Management Plan contained specific short term measures for architectural coatings - #97CTS07 – Further Reductions from Architectural Coatings – Rule 1113 and #94CTS07. In support of these control measures, two major amendments have been adopted by the Governing Board over the past six years.

The first such amendment was adopted in November 1996 to lower the VOC limits for some coating categories based on the concept of reformulation of existing coatings, increase the VOC limit for other coating categories, reinstate higher VOC limits pursuant to an earlier court order, and address issues raised since the September 6, 1991

[1] Stirring Up Innovation: Environmental Improvements in Paints and Adhesives, INFORM, Inc., 1994

amendments. These included clarification of Applicability, addition of the Purpose of the rule, addition of and modification to some definitions, synchronizing final compliance dates for all coating categories, and updating the analytical test methods. This amendment implemented both Control Measure #94CTS07 and Phase I of Control Measure #97CTS07 – Further Emission Reductions from Architectural Coatings – Rule 1113. Subsequently, three separate lawsuits were filed by industry challenging the lower limits for flats and lacquers on both state and federal grounds. The AQMD has prevailed in all three lawsuits in all state grounds, and has succeeded in obtaining dismissal of most of the federal grounds. An appeal was filed by one of the three plaintiffs, and subsequently denied by the Appeals Court.

On May 14, 1999, Phase II of the Control Measure #97CTS07 was implemented by amending Rule 1113 – Architectural Coatings to establish lower interim and final VOC limits for new and existing coating categories. These included Chemical Storage Tank; Essential Public Service; Floor; Industrial Maintenance; Non-flat; Primers, Sealers, and Undercoaters; Quick-Dry Enamels; Quick-Dry Primers, Roof; Sealers, and Undercoaters; Recycled; Rust Preventative, and Specialty Primers.

Subsequent to the May 14, 1999 amendments to Rule 1113, CARB developed a revised suggested control measure (SCM) in June 2000 for architectural coatings that was largely based on the interim limits and the averaging provision of Rule 1113. The SCM, which has January 1, 2003 as the main compliance date for most coating categories has been adopted by 16 (see below) of the 35 local air districts in California.

Districts That Have Adopted CARBs June 2000 SCM

Bay Area Air Quality Management District	Butte County Air Quality Management District
Colusa County Air Pollution Control District	Feather River Air Quality Management District
Monterey Bay Unified Air Pollution Control District	Northern Sonoma County Air Pollution Control District
Placer County Air Pollution Control District	Sacramento Metropolitan Air Quality Management District
San Diego County Air Pollution Control District	San Joaquin Valley Unified Air Pollution Control District
San Luis Obispo County Air Pollution Control District	Santa Barbara County Air Pollution Control District
Shasta County Air Quality Management District	Tehama County Air Pollution Control District
Ventura County Air Pollution Control District	Yolo-Solano Air Quality Management District

III. COURT RULING

Subsequent to the May 14, 1999 amendments to Rule 1113, three lawsuits were filed against the South Coast Air Quality Management District (AQMD) that were subsequently consolidated as one matter by the court. Although the District prevailed in the trial court, on June 24, 2002, the Court of Appeal of the State of California Fourth Appellate District, Division Three, issued a ruling finding that the May 14, 1999 amendments to Rule 1113 were not properly adopted. The appellate court has directed the trial court to issue a writ of mandate to order the AQMD to vacate those rule amendments, based on changes made to the rule within the last 30 days of the rulemaking process. Subsequently, the AQMD filed a petition for review to the California Supreme Court to review that appellate decision. On October 1, 2002, the Supreme Court denied review of the AQMD's petition. As a result, AQMD expects the trial court to issue a writ of mandate ordering the AQMD to vacate the May 14, 1999 amendments. To ensure the VOC reductions are achieved in a timely manner, however, staff is proposing to readopt the May 14, 1999 VOC limits along with changes resulting from a new proposed compliance date of January 1, 2003 and January 1, 2004 for the interim rule limits (as in the SCM) and other clarifying changes. These proposed amendments and clarifications are in direct response to industry comments and concerns received since 1999, and are designed to respond to recent court findings of inadequacies during the adoption process.

In summary, the current action is to re-propose key portions of the previously adopted May 14, 1999 amendments with the following types of revisions:

1. Changes relating to revising the interim compliance dates;

2. Clarifications to the originally-adopted rule language to reflect original intent and rule interpretations;

3. Clarifications to address CARB/USEPA issues such as alignment with more stringent CARB Suggested Control Measure (SCM) limits in several categories; and

4. Realignments and clarifications requested by the public at the Public Workshop and Public Consultations Meetings.

C H A P T E R II

PROPOSED AMENDMENTS

I. PROPOSED AMENDMENTS

Rule 1113 - Architectural Coatings was amended on May 14, 1999, which resulted in the lowering of VOC limits for numerous coating categories, as well as revising the Averaging Program. Subsequently, three lawsuits were filed against the AQMD that were subsequently consolidated as one matter by the court. Although the District prevailed in the trial court, on June 24, 2002, the Court of Appeal of the State of California Fourth Appellate District, Division Three, issued a ruling finding that the May 14, 1999 amendments to Rule 1113 were not properly adopted. The appellate court has directed the trial court to issue a writ of mandate to order the AQMD to vacate those rule amendments, based on changes made to the rule within the last 30 days of the rulemaking process. The AQMD filed a petition for review to the California Supreme Court, to seek a review of that appellate decision, but was denied the review on October 1, 2002.

During the pending of the petition to review and to ensure that VOC reductions are achieved regardless of its outcome, Staff proposed to readopt key portions of the May 14, 1999 amendments with additional rule changes to reflect the new compliance date of January 1, 2003 and January 1, 2004 for the interim limits, clarifications to reflect the original intent of the adopted rule, and other changes in response to public, CARB and USEPA comments received since the May 1999 amendments.

The amendments to Rule 1113 adopted on May 14, 1999, included definition additions and deletions, and modifications to the VOC limits, with some new coating categories added to the Table of Standards. Interim VOC limits for most coating categories were established beginning July 1, 2002 with final VOC limits effective July 1, 2006. Additionally amendments included revisions to container labeling requirements, expansion of the categories allowed in the Averaging Program and additional categories added to the Technology Assessments. Benefits to the 1999 amendments included achieving emission reductions of 21.8 tons per day on an Annual Average Basis by lowering the VOC limits for many categories. For a more detailed summary of the 1999 amendments, refer to the discussion later in this Chapter.

Proposals for 2002 Amendments

In addition to the previous May 1999 VOC limits proposed for readoption, staff intends to propose other changes as follows:

Proposed Changes in Compliance Dates

- Modify the definition of "Industrial Maintenance Coatings" to adjust the effective date of prohibiting the use at residential or areas of industrial, commercial, or institutional facilities not exposed to extreme environmental conditions.

- Modify the definition of "Quick-Dry Primers, Sealers, and Undercoaters" to adjust the effective date.

- Revise Section (c) – Requirements, Subsection (2) – Table of Standards by changing the interim compliance date from July 1, 2002 to January 1, 2003 for most categories. These interim compliance dates match those for CARB's SCM. For the Industrial Maintenance Coatings Category, which includes Essential Public Service Coatings, the VOC interim limit of 250 g/l will be effective January 1, 2004 to coincide with the CARB SCM. The Zinc-Rich Industrial Maintenance Primers category, a new coating category established in response to public comments, has an interim VOC limit of 340 g/l effective January 1, 2003.

- To coincide with the CARB SCM, revise Section (c) – Requirements, Subsection (2) – Table of Standards by changing the final compliance date for: High Temperature Industrial Maintenance Coatings with a VOC limit of 420 g/l, from July 1, 2006 to January 1, 2003; Pre-Treatment Wash Primers with a VOC limit of 780 g/l to 420 g/l, effective January 1, 2003; and Swimming Pool Repair Coatings with a VOC limit of 650 g/l to 340 g/l, effective January 1, 2003.

- Revise effective date in Section (d) – Administrative Requirements, Subsection (5) from July 1, 2002 to January 1, 2003.

- Revise compliance date in Section (d) – Administrative Requirements, Subsection (6) from July 1, 2002 to January 1, 2003.

- Align the exemption expiration date in paragraph (g)(2) for annually reported architectural coatings recommended by the manufacturer for use solely as quick-dry primers, sealers and undercoaters to January 1, 2003.

Clarifications to Reflect Original Intent of Rule:

- Clarify Section (a) Applicability to include the word "field" which refers to coatings applied to stationary structures or their appurtenances, and to mobile homes, pavements or curbs at the site of installation.

- Clarify the definition of "Floor Coatings" by excluding Industrial Maintenance Coatings. Subsequent to the October 31, 2002 Public Consultation Meeting, staff responded to a comment requesting that floor coatings be expanded to include both opaque and clear coatings; however, in subsequent communication with the commentator and concerns from other manufacturers of clear floor coatings, staff determined that there was a misinterpretation. Therefore, the term "opaque" as originally stated in the May 14, 1999 amendments, has been reintroduced.

- Clarify the definition of "Industrial Maintenance Coatings" to include their use as floor coatings as long as they meet one or more of the extreme environmental conditions listed in the rule.

- Clarify the definition of "Metallic Pigmented Coatings" to change the amount of required elemental metallic pigment (excluding zinc) per liter of coating from 50 to 48 grams per liter to match the required 0.4 pounds per gallon.

- Clarify Section (c) – Requirements, Subsection (6) to include Specialty Primers in the Averaging Compliance Option.

- Clarify Section (d) – Administrative Requirements, Subsection (4) by adding references to the "Quick-Dry Primers, Sealers, and Undercoaters and Quick-Dry Enamel".

- Correct Section (g) – Exemptions, Subsection (8) by removing references to "lacquers and flat coatings" which were never intended to be exempt from the VOC limits required to be met by small coatings manufacturers under this section.

- Clarify Appendix A: Averaging Provision by adding the following:

  – Ceiling or maximum allowable limits for each category included in the Averaging Program under Section (A).

  – Include specific records that could be used to track sales and emissions for the Averaging Program under Section (C)(5). If the type of records submitted are not listed in the rule, those records must be approved by the USEPA, ARB, and the Executive Officer before an Averaging Program can be approved.

  – Insert rule language to clarify that the sell through provision of the rule also applies to coatings included under the Averaging Compliance Option Program.

Proposed Revisions Following Recent Public Meetings

- Add a definition for "Bituminous Roof Primers" which creates a bituminous roof primer category to coincide with the CARB SCM on architectural coatings and delete the definition of Bituminous Roof Coatings and remove it as a category in the Table of Standards.

- Delete the definition of Chemical Storage Tank Coatings and remove it as a category in the Table of Standards. These coatings will now be required to meet the VOC limit of the Industrial Maintenance Coating category, as is the case in the CARB SCM.

- Revise several of the specialty coatings definitions to indicate that their VOC limits apply upon their "formulation or application" rather than their "formulation and application". The word "and" would imply that both "formulation" and "application" would have to occur before the VOC limits would apply.

- Delete definition of Essential Public Service Coatings and remove it as a category in the Table of Standards. These coatings will now be required to meet the VOC limit of the Industrial Maintenance Coatings category, as is the case in the CARB SCM.

- Revise the definition of "Fire-Retardant Coatings to allow testing of these coatings by any testing organization approved by building code officials.

- Delete from the definition of "Floor Coatings" the phrase "for purposes of abrasion resistance". Additionally, the exclusion of Industrial Maintenance Coatings has been added. This allows floor coatings to be applied for other purposes, such as chemical resistance, as well as allow the use of clear and pigmented coatings to be included in this category.

- Add a definition for "Formulation Data" to indicate that formulation data is a product recipe that itemizes ingredients contained in the product. Formulation data can be used for calculating the VOC content of coatings for labeling purposes.

- Amend the definition of "Metallic Pigmented Coatings" to include mica particles or any combination of mica particles and metallic pigments (excluding zinc).

- Extend the interim VOC limit for Industrial Maintenance Coatings of 250 g/l to January 1, 2004 to coincide with the SCM.

- Amend the effective date for High Temperature Industrial Maintenance Coatings of 420 g/l, from July 1, 2006 to January 1, 2003 to coincide with the CARB SCM.

- Add the definition "Zinc-Rich Industrial Maintenance Primers" and establish a new category for these primers in the Table of Standards with a proposed interim VOC limit of 340 g/l and a final VOC limit of 100 g/l and an effective date of January 1, 2003 and January 1, 2006, respectively.

- Modify the VOC limit for Pre-Treatment Wash Primers to 420 g/l, effective January 1, 2003 to coincide with the CARB SCM.

- Add definitions for "Post-Consumer Coatings" and "Secondary Coatings (Rework)" to further clarify the definition for "Recycled Coatings".

- Revise the definition of "Sealers" by adding the words "either block materials from penetrating or leaching out of a" to allow the use of such coatings without the need for a secondary or topcoating.

- Modify the VOC limit for Swimming Pool Repair Coatings to 340 g/l effective January 1, 2003 to coincide with the CARB SCM.

- Revise the definition of “Waterproofing Wood Sealers” by removing the word “Wood” to make it a more generalized waterproofing category and remove the word “colorless” to allow pigmented sealers. Additionally the word “sole” has been replaced with “primary”.

- Clarify the definition for “Waterproofing Concrete/Masonry Sealers” to allow this category to include either clear or pigmented non-film forming or film-forming sealers.

- Add language to Section (c) – Requirements, Subsection (2) to allow a Rust Preventative Coating to be used for industrial use, as long as it meets the VOC limit specified in the Table of Standards for Industrial Maintenance Coatings.

- Rewrite Section (c) – Requirements, Subsection (4) to clarify the three year sell through provision.

- Clarify Section (d) – Administrative Requirements, Subsection (6) to allow the labels of specialty primers to display one or more of four possible descriptions.

- Clarify Section (d) – Administrative Requirements, Subsection (9) to make it clear that the manufacturer, distributor, or seller of a coating is not liable for the improper use of a coating by the applicator, unless they knew of the improper use.

- Clarify Section (g) – Exemptions, Subsection (7) to exempt persons at any facility, not just manufacturing facilities, from the VOC limits when applying coatings to test specimens for the purpose of research and development of those coatings.

The Industrial Maintenance Coating Category proposal has been revised in response to numerous comments submitted by the public. Although the District’s initial technology assessment indicated that the VOC limits of 250 g/l and 100 g/l are technically feasible for industrial maintenance coatings effective July 1, 2002, PAR1113 has been revised to extend the VOC limit of 250 g/l until January 1, 2004, which aligns the requirement with CARB’s SCM.

Additionally, based on comments received from industry as well as the appellate court, staff is proposing to delete the Essential Public Service Coating Category. This category was initially proposed in 1999 to provide a higher interim VOC limit of 340 g/l until July 1, 2006 in order to provide sufficient time for the providers of essential services to test and update their specifications. Typical testing consists of two year laboratory assessments, followed by a one year field exposure test, and then a two year pilot testing phase before these public agencies can incorporate a new coating into their specifications. Private companies have not illustrated the same level of testing required before revising their specifications. Deletion of this category and revision of the Industrial Maintenance Coatings VOC limits to include a 340 g/l limit until January 1, 2004, should allow adequate time for Essential Public Services to rewrite specifications. However, if all of their assessments are not complete, Essential

Public Services agencies can utilize the sell through provision provided, and manufacturers of products used by the agencies can take advantage of the Averaging Compliance Option in the rule to continue using products that have a higher VOC limit than the Table of Standards. Furthermore, subsequent to the May 14, 1999 amendments to the rule, the CARB SCM was adopted and found that a separate category was not necessary. Making the Industrial Maintenance Coating Category effective date January 1, 2004 instead of January 1, 2003, will result in postponement of emissions reductions of approximately 2.9 tons per day.

Under the proposed amendment to the definition of Metallic Pigmented Coatings, the AQMD mentions that zinc is not to be included as part of an elemental metallic pigment. Therefore, a new category for Zinc-Rich Industrial Maintenance Primer Coating is proposed with a VOC limit of 340 g/l effective January 1, 2003. The District supports industry's concerns that approved coatings under NSF/ANSI Standard 61 (referencing coatings that come in contact with potable water) are not available in the less than 250 g/l VOC range. This will allow time for standards to be updated to include new existing technologies that meet VOC limits that are less than 100 g/l by July 2006.

The following pages include a summary of the May 14, 1999 amendments.

Summary of May 14, 1999 Amendments:

1999 Amendments to Definitions

- Add a definition for "Bituminous Roof Coatings"
- Add a definition for "Chemical Storage Tank Coatings"
- Add a definition for "Essential Public Service Coatings"
- Add a definition for "Floor Coatings" as defined in the National AIM Rule
- Add a definition for "High Temperature - Industrial Maintenance Coatings" as originally adopted on February 9, 1990
- Delete the definition for "Industrial Maintenance Primers and Topcoats"
- Add a definition for "Industrial Maintenance Coatings" as originally adopted on February 9, 1990. Incorporate "Industrial Maintenance – Anti-Graffiti Coatings" into the industrial maintenance coating category
- Add a definition for "Nonflat Coatings" as defined in the National AIM Rule
- Revise the definitions for "Quick-Dry Enamels" and "Quick-Dry Primers, Sealers, and Undercoaters", subsuming them into the nonflat and primers, sealers, and undercoaters categories, respectively, effective July 1, 2002

- Add a definition for "Recycled Flats and Nonflats"
- Add a definition for "Rust Preventative Coatings"
- Add a definition for "Speciality Primers"
- Revise the definition for "Waterproofing sealers" to "Waterproofing Wood Sealers"
- Add a new definition for "Waterproofing Concrete/Masonry Sealers", as defined by industry

1999 Modifications to VOC Limits

- Establish the VOC limit for bituminous roof coatings at 300 g/l, effective date of adoption, and lower the VOC limit from 300 g/l to 250 g/l effective July 1, 2002 (The current proposal for roof coatings is January 1, 2003).
- Establish the VOC limit for chemical storage tank coatings at 420 g/l, effective May 14, 1999 and lower the VOC limit to 100 g/l, effective July 1, 2006 (The current proposal deletes this category to align with the CARB SCM).
- Establish the VOC limit for essential public service at 420 g/l effective date of adoption, and lower the VOC limit from 420 g/l to 340 g/l, effective July 1, 2002 and then further reduce from 340 g/l to 100 g/l effective July 1, 2006 The current proposal deletes this category to align with the CARB SCM).
- Establish the VOC limit for opaque floor coatings of 400 g/l, effective date upon adoption, and lower the VOC limit from 400 g/l to 100 g/l effective July 1, 2002, and further reduce from 100 g/l to 50 g/l effective July 1, 2006. The proposed floor coating category is a subset of the industrial maintenance coating category, which has a VOC limit of 420 g/l. The 400 g/l limit is established in advance of the National Architectural and Industrial Maintenance (AIM) rule's 400 g/l limit for floor coatings, which will become effective September 13, 1999. Conduct a product availability assessment by July 1, 2001 for the 100 g/l limit and July 1, 2005 for the 50 g/l limit. Include an averaging provision to allow manufacturers to average the VOC content of their floor coatings, on a sales-weighted basis (The current proposal extends the interim compliance date to January 1, 2003).
- Establish the VOC limit for high temperature - industrial maintenance coatings of 550 g/l, effective July 1, 2002, and lower to 420 g/l effective

July 1, 2006 (The current proposal is more stringent and aligns with the CARB SCM).

- Lower the VOC limit for industrial maintenance coatings from 420 g/l to 250 g/l effective July 1, 2002. Then reduce the VOC limit from 250 g/l to 100 g/l effective July 1, 2006. Conduct a product availability assessment by July 1, 2001 for the 250 g/l limit and July 1, 2005 for the 100 g/l limit. Include an averaging provision to allow manufacturers to average the VOC content of their industrial maintenance coatings, on a sales weighted basis (The current proposal extends the interim compliance date to January 1, 2004 to align with the CARB SCM).

- Establish the VOC limit for essential public service coatings at 340 g/l, effective July 1, 1999 and lower to 100 g/l effective July 1, 2006 (The current proposal deletes this category to align with the CARB SCM).

- Delay the July 1, 2006 VOC limit for nonflats, primers, sealers, and undercoaters, quick-dry enamels, and rust-preventative coatings until July 1, 2008 for small manufacturers (The current proposal does not revise the schedule).

- Lower the VOC limit for nonflats from 250 g/l to 150 g/l, effective July 1, 2002 and further reduce from 150 g/l to 50 g/l, effective July 1, 2006. Conduct a product availability assessment by July 1, 2001 for the 150 g/l limit and by July 1, 2005 for the 50 g/l limit. Include an averaging provision to allow manufacturers to average the VOC content of their nonflats, on a sales-weighted basis (The current proposal extends the interim compliance date to January 1, 2003).

- Lower the VOC limit for primers, sealers, and undercoaters from 350 g/l to 200 g/l, effective July 1, 2002, and further reduce from 200 g/l to 100 g/l, effective July 1, 2006. Conduct a product availability assessment by July 1, 2001 for the 200 g/l limit and by July 1, 2005 for the 100 g/l limit. Include an averaging provision to allow manufacturers to average the VOC content of their primers, sealers, and undercoaters, on a sales weighted basis (The current proposal extends the interim compliance date to January 1, 2003).

- Lower the VOC limit for quick-dry enamels from 400 g/l to 250 g/l, effective July 1, 2002, and further reduce the VOC limit from 250 g/l to 50 g/l effective July 1, 2006. Conduct a product availability assessment by July 1, 2001 for the 250 g/l limit and by July 1, 2005 for the 50 g/l limit. Include an averaging provision to allow manufacturers to average the VOC content of their quick-dry enamels, on a sales weighted basis (The current proposal extends the interim compliance date to January 1, 2003).

- Establish a VOC limit for quick-dry primers, sealers, and undercoaters at 350 g/l, effective date upon adoption, unless the manufacturer submits an exemption report pursuant to Rule 1113(g)(3). Lower the quick-dry primers, sealers, and undercoaters to 200 g/l, effective July 1, 2002, and further reduce from 200 g/l to 100 g/l effective July 1, 2006. Conduct a product availability assessment by July 1, 2001 for the 200 g/l limit and by July 1, 2005 for the 100 g/l limit. Include an averaging provision to allow manufacturers to average the VOC content of their quick-dry primers, sealers, and undercoaters, on a sales weighted basis (The current proposal extends the interim compliance date to January 1, 2003).

- Establish a VOC limit for recycled flats and non-flats at 250 g/l, effective date upon adoption, and then lower from 250 g/l to 100 g/l effective July 1, 2006 (The current proposal extends the interim compliance date to January 1, 2003).

- Lower the VOC limits for roof coatings from 300 g/l to 250 g/l, effective date upon adoption (The current proposal extends the interim compliance date to January 1, 2003).

- Establish the limit for rust preventative coatings at 400 g/l, effective date upon adoption, and then lower from 400 g/l to 100 g/l, effective July 1, 2006. The proposed rust preventative coating category is currently a subset of the industrial maintenance coating category, which has a VOC limit of 420 g/l, quick-dry enamels which has a VOC limit of 400 g/l, and primers, sealers, and undercoaters, which has a VOC limit of 350 g/l. However, the limit established in the National Architectural and Industrial Maintenance (AIM) rule for rust preventative coatings is 400 g/l, which will become effective September 13, 1999. Conduct a product availability assessment by July 1, 2005 for the 100 g/l limit. Include an averaging provision to allow manufacturers to average the VOC content of their rust preventative coatings, on a sales-weighted basis (The current proposal extends the interim compliance date to January 1, 2003 and allows the use of a rust preventative coating in an industrial environment as long as the coating complies with the Industrial Maintenance Coating category).

- Establish the VOC limit for specialty primers at 350 g/l, effective May 14, 1999 and lower the VOC limit to 100 g/l, effective July 1, 2006 (The current proposal extends the interim compliance date to January 1, 2003).

- Lower the VOC limits for stains from 350 g/l to 250 g/l, effective July 1, 2002 (The current proposal extends the interim compliance date to January 1, 2003).

- Lower the VOC limit for waterproofing wood sealers from 400 g/l to 250 g/l, effective July 1, 2002 (The current proposal extends the interim compliance date to January 1, 2003).

Other 1999 Changes

- The container label requirements will be revised and require the special labeling for rust preventative coatings.

- The exemption for Quick-Dry Primers, Sealers and Undercoaters will be deleted, effective January 1, 2003. Recycled non-flat and flat paints, as well as bituminous roof coatings will be added.

- The Averaging Provision will be clarified and expanded to include, in addition to the flats, nonflats; primers, sealers, and undercoaters; quick-dry enamels; quick-dry primers, sealers, and undercoaters; floor coatings; rust preventative coatings; waterproofing wood sealers; stains; roof, and industrial maintenance coatings.

- Technology Assessment provisions will be revised to include nonflats; primers, sealers, and undercoaters; quick-dry enamels; quick-dry primers, sealers, and undercoaters; floor coatings; rust preventative coatings; waterproofing wood sealers; stains; and industrial maintenance coatings, as well as an added assessment for reactivity-based ozone control strategy.

- Reporting requirements for rust preventative coatings and recycled flats and non-flats will be established.

Benefits of 1999 Amendments

- Lowering the VOC limits for nonflats; industrial maintenance; primers, sealers, and undercoaters; quick-dry enamels; quick-dry primers, sealers, and undercoaters; roof coatings; floor coatings, rust preventative coatings, stains; and waterproofing wood sealers will achieve an emission reduction of approximately 21.8 tpd on an Annual Average Basis.

- With the above changes, the reduction in VOC emissions is estimated to be 21.8 tpd or approximately a 38 percent emission reduction compared to the pre-1999 amendments emission inventory, for the Annual Average. The reductions are estimated to be > 26 tpd for the Summer Planning Inventory.

II. LEGISLATIVE AUTHORITY

The California Legislature created the South Coast AQMD in 1977 (Lewis-Presley Air Quality Management Act, California Health and Safety Code Sections 40400 et seq.) as the agency responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin (SCAB). By statute, the AQMD is required to adopt an Air Quality Management Plan (AQMP) demonstrating compliance with all state and federal ambient air quality standards for the Basin [Health and Safety Code Section 40460(a)]. Furthermore, the AQMD must adopt rules and regulations that carry out the AQMP [Health and Safety Code Section 40440(a)].

C H A P T E R III

ADDITIONAL INFORMATION

The following annual status report summaries, coating standard specifications, surveys, site evaluations and studies are included as supplemental information that further substantiates the findings of the original staff report from May 14, 1999.

I. ANNUAL STATUS REPORTS

Subsequent to the Board approval of the May 14, 1999 amendments to Rule 1113, the Board approved and adopted a workplan for implementation of the amendments. This workplan required the formation of various subgroups to ensure successful implementation. As a part of this workplan, the Board required staff to present an annual status report to the Board.

To date, three such status reports have been forwarded to the Governing Board, highlighting the details of the rule implementation program and workplan.

July 2000 Report

The July 2000 Status Report summarized the activities of District staff, the Working Group, Averaging/Niche Markets Sub-Group, and the Technical Advisory Committee (TAC), as well as the progress made relative to the Essential Public Service Coating technology assessment. The report also included staff's recommendations to maintain the 100 g/l for flat coatings, effective July 1, 2000, as a result of the technology assessments for that category.

The TAC, with the objective to provide technical oversight of the Phase II Assessment Study and future technology assessments, including selection of coatings, relevant testing, and the report formats, was the most active subgroup. In conjunction with the TAC, staff reviewed the results of the laboratory portion of the Phase II Assessment Study for Architectural Coatings. In response to concerns expressed by some members of the TAC, National Technical Systems (NTS), the contracted laboratory, re-evaluated the dry time test based on a protocol developed by the TAC. This review did not result in changes to the final data, but did clarify the deviation from a standardized test method. The TAC has also reviewed the actual panels for numerous laboratory tests during a site visit to the NTS laboratory in Sacramento. Additionally, based on comments by the TAC, NTS re-evaluated the ranking for the leveling analysis based on an agreed modification to the test method. This re-evaluation also did not result in any modifications to the conclusions derived from the original laboratory test data. Furthermore, the TAC reviewed the protocol and subsequent results of the accelerated outdoor weathering data. This data paralleled the results of the accelerated laboratory weathering. In April 2000, NTS initiated the real-time exposure study by placing coated panels on exposure racks in Saugus and El Segundo to obtain exposure data in the cooler, more humid marine environment, and the hotter, drier inland empire climate. The results of those exposure studies were addressed in the July 2002 Annual Status Report to the Board and is discussed on the following pages.

The TAC also developed the protocol for an evaluation of application characteristics for the coatings included in the NTS study. Although the protocol was finalized by the TAC, a contractor was not selected due to the lack of availability of institutional painters. The TACs painting contractor representative was also not successful in identifying contractors for this type of field application testing.

July 2001 Report

The July 2001 Annual Status Report highlighted activities of the staff and the various workgroups between July 2000 and July 2001. During this period, the staff, with significant assistance from the Averaging Workgroup, finalized the Averaging Implementation Guidance Document, and devised a protocol for interested manufacturers to submit Averaging Programs for flat coatings. Additionally, subsequent to the initiation of the NTS 2-year real time exposure study in April 2000, the TAC reviewed the exposure of panels both at the El Segundo and Saugus facilities on a quarterly basis. After a 12-month exposure, the TAC concluded that zero- and low-VOC coatings were performing comparable to high-VOC coatings while some were failing, others were performing well. The visual inspections, as well as the empirical data gathered, corroborated the findings and conclusions from the laboratory and the accelerated outdoor exposure tests. However, no final conclusions or results were presented based on interim results from the real time exposure evaluation. During this time period, the TAC also designed the protocol for the technology assessments for high-gloss nonflats, floor coatings, stain-blocking specialty primers, and stains.

July 2002 Report

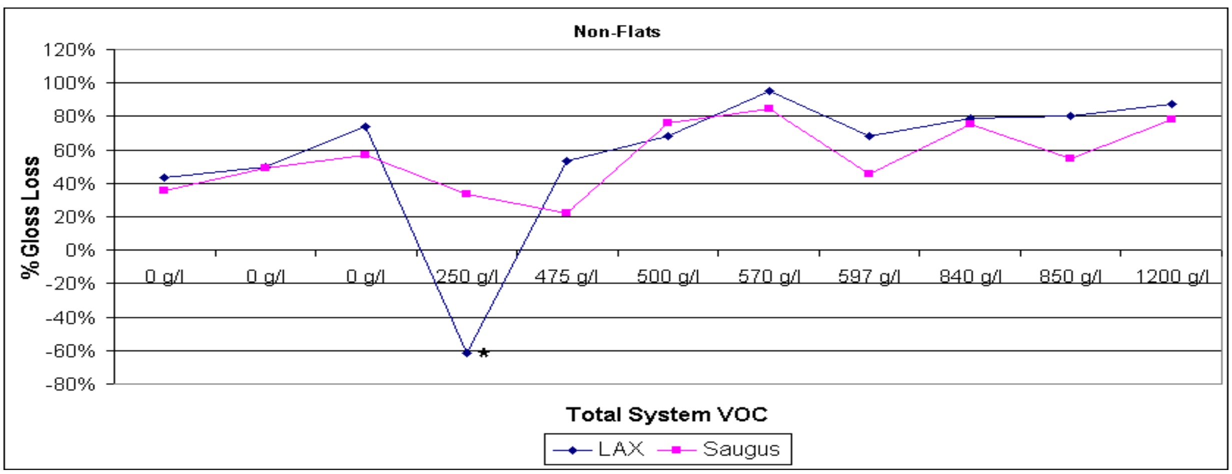
The July 2002 Annual Status Report discussed continued meetings with committees since the previous report one year prior, as well as the results of several coatings studies. The coating studies included the NTS real time exposure testing that began in April of 2000 and completed in April 2002, and a study by KTA-Tator that further assessed the characteristics and performance of various formulations of specific coatings based on a variety of resin systems completed in January of 2002. Also, the report provided information on milestones, accomplishments and issues associated with the implementation of Rule 1113. The concerns of the public and industry representatives were addressed and discussed through rule interpretations, completed and future technology assessments, current and future compliance activities, architectural coating usage surveys and coatings availability studies. Similar to previous reports submitted to the Board regarding this rule, the results of coating technology assessments and staff's product availability studies indicated the availability of compliant coatings in the specific categories studied that are viable alternatives to higher VOC products currently being manufactured for use on architectural structures. The 2002 report concluded that the necessary coating technology is available today to reduce significant amounts of VOCs that contribute to the overall formation of low level ozone within the Basin. The NTS and KTA-Tator coating studies discussed in the July 2002 report are discussed in more detail later in this report in the following chapter.

II. COATING STUDIES/TECHNOLOGY ASSESSMENTS

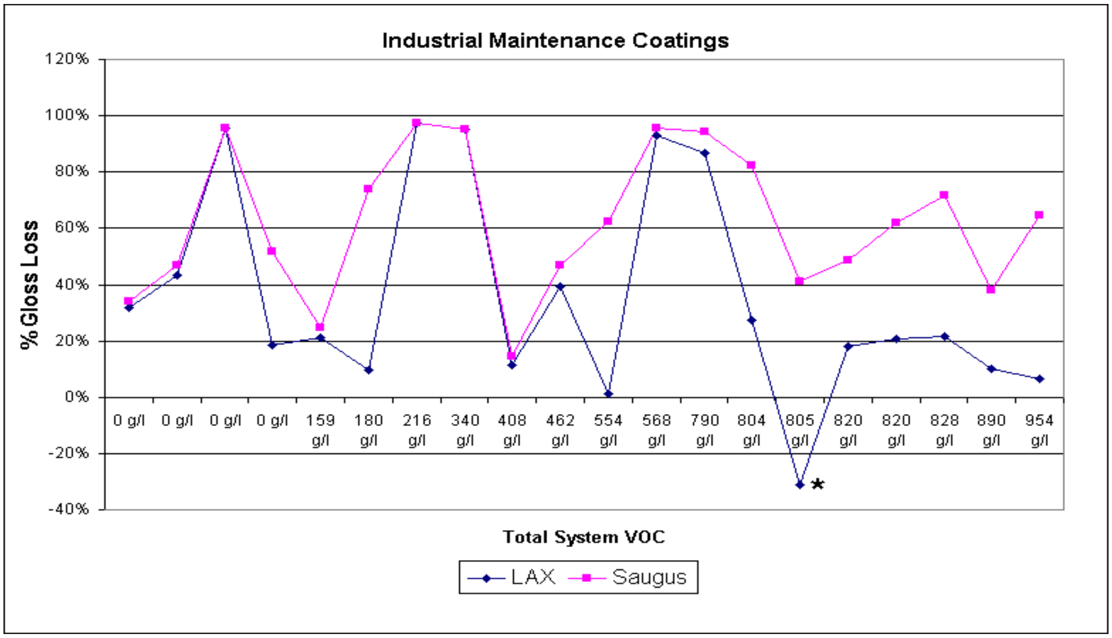
NTS Outdoor Exposure Testing

This study on real time exposure testing of coatings by NTS began in April of 2000 and was completed in April 2002. At the end of the two-year outdoor test, the results continue to show that zero- and low-VOC coatings are similar in weathering and durability characteristics, and in many cases have outperformed their higher VOC based counterparts, corroborating the conclusions reached by the laboratory weathering and accelerated outdoor weathering studies.

As required by the ASTM test method an evaluation of the gloss characteristics relative to the performance of the coatings showed that the zero- and low- VOC non-flat exterior and industrial maintenance coatings tested had gloss loss values that were similar and in many instances less than the high-VOC coatings. The following charts give a comparative analysis of the gloss loss as an indicator of performance for the Non-flat and Industrial Maintenance coatings studied in the outdoor exposure test.



*This data point appears to be an anomaly. However, all data points are included in this chart for completeness purposes. Exclusion of this data point does not affect trend.



*This point appears to be an anomaly. However, all data points are included in this chart for completeness purposes. Exclusion of this data point does not affect overall trend.

KTA – Tator Coatings Study

This study by was based on a Request for Proposal as devised by the mutual consensus of the TAC and the District, that resulted in the selection of the contractor KTA Tator, and the development of the protocol for conducting the study, as well as the selection of the coatings to be evaluated. The characteristics and performance of 31 coatings on various substrates were studied in the evaluation that included floor coatings, nonflats (interior and exterior) high gloss, primers with stain-blocking properties, and interior stains. The main objective of the testing was to compare performance characteristics of currently available low-VOC coatings with higher-VOC coatings in the same category for the interim limits. The District concludes that the results of the study support feasibility of the proposed interim limit for each of these categories. Low-VOC products are currently available and, in all categories tested, work as well as and in some cases better than the higher-VOC counterparts. The study tested only a small portion of the low-VOC products currently available at retail and commercial outlets, selected by the TAC.

The validity of the High Gloss Nonflats coating analysis and results of the KTA-Tator study have been a point of contention among TAC members. In the KTA Tator study, as well as the CARB SCM, High Gloss Nonflats are defined as coatings with a gloss of no less than 70 on a 60 degree meter. This was the criteria used by the TAC, who had oversight over the coatings selected and used in the assessment. The TAC relied upon gloss values published in the manufacturer's product data sheets. The actual measurement for gloss shows that none of the coatings included in the testing, which includes the products with a VOC content less than 150 g/l, as well as more than 150 g/l met the gloss values levels indicated in the high-gloss nonflat definition. The actual gloss values of waterborne coatings have been an issue within the industry for several years, and prompted the Master Painter's Institute to conduct a special study entitled New MPI gloss levels study 'spotlights' industry problem. This study also concluded that the industry has caused a lot of confusion in their marketing literature by going away from actually reporting gloss levels at both the 60 degree and 85 degree meter. MPI proposed to adopt standardized gloss reporting methods as a resolution to this on-going issue.

Averaging Compliance Option

There is a provision in the rule referred to as the Averaging Compliance Option (ACO) that allows a manufacturer to average, on a volume-weighted basis, the VOC contents of coatings and allows them to distribute for use within the District, coatings that have a VOC content higher than the applicable limits. Appendix C of this staff report contains the ACO Guidance Document to assist manufacturers with the design and implementation of an averaging program. The goal is to provide an enforceable alternative approach, which provides flexibility to the manufacturer and achieves emission reductions without limiting product choices/options. To date seven manufacturers have applied for this option, and all of them have one or more products below the applicable limits in these niche categories that they are using to offset the higher VOC counterparts.

Low VOC Coatings Meeting Master Painter's Institute Standards

In addition to the TACs continued efforts on the NTS Study and the KTA Tator Study, staff also reviewed other information to supplement its technology assessment. Master Painter's Institute (MPI), a group founded to develop performance-based standards in conjunction with paint manufacturers and paint technologists, developed a list of products that meet the performance requirements developed by MPI, Department of Defense, and other stakeholders. MPI's performance standards are defined through various internal test protocols and approved test methods conducted in their lab. Once the product passes the testing criteria, it can be included in the most current edition of MPI's Approved Products List (APL). Performance standards vary for different categories and are modified as new products are introduced and testing is completed. MPI has recently introduced Gloss and Sheen standards that also specify required levels of finishing for coatings listed on the APL.

The following pages include an updated APL list from MPI's website (www.paintinfo.com) for selected categories relative to the Table of Standards in Rule 1113. The VOC contents of the highlighted coatings listed meet, or are less than the proposed January 1, 2003 limits which are the same as those originally adopted in the May 14, 1999 rule amendments. It should be noted that certain categories listed indicate minimum gloss values of 65 units @ 60 degrees. Industry standards for gloss levels delineating between a semi-gloss and high gloss nonflat coating are typically 70 units at 60 degrees. For actual gloss ratings of specific coatings it is recommended that the reader review the product data sheets for that desired coating.

On February 25, 2002, MPI announced a new environmental notation system designed to consider coating characteristics such as durability, performance, or duty-cycle in addition to coating VOC levels. This new notation is currently being applied to selected interior paints included in the APL. The "E" or VOC range as noted on the following pages is given for nearly all of MPI's coatings categories, and included with many of those listed is an Environmental Performance Rating (EPR) or Environmental Product Rating (EPR) used interchangeably. This EPP or EPR rating is basically a total of the "E" range number combined with applicable points. Those added points are based on characteristics factored in such as relative category performance, gloss/sheen performance and appropriate specified use. As noted in the following tables of various coating categories, the lower VOC coatings have generally overall better performance characteristics, given the factors considered in this new notation system (ie. higher EPP or EPR values), when compared to the higher VOC counterparts.

FLOOR COATINGS

MPI #93 Epoxy Floor Paint, Water-based

A water based epoxy floor paint for use on concrete and wood floors, stairs, and landings where a durable, abrasion resistant finish is required, but the odor of solvent based epoxy products would preclude their use.

*[See MPI '**Intended Use**' Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <101 g/L	E2 101 — 200 g/L	E1 201 — 300 g/L	Blanks may indicate information unavailable.

EPR - Environmental/Performance Rating (VOC & Relative Performance of Category+Gloss & Appropriate Specified Use). L &Mac178; LEED level.

< Listing Brand	Label	Product Name	Code	E Range	EPR
Benjamin Moore	Industrial	Acrylic Epoxy Gloss Coating	M4303	1	1
Columbia Paint CGI	Sierra Performance	Concrete Enamel	S40	3	3
Columbia Paint CGI	Insl-X	Aqua-Tile WB Epoxy	AT-A100	2	2
Coronado Paint	Industrial	Amine Adduct Water Based Epoxy	142 Series	1	1
General Paint CGI	Amercoat	Waterborne Epoxy Acrylic	335	1	1
Griggs Paint		Hydropox #2 Waterborne 2-Comp. Epoxy		3	3
ICI Devoe	ICI Devoe	Tru-Glaze 4408	4408	1	1
ICI Dulux Paints	Devoe Tru-Glaze	Waterborne Epoxy Semi-Gloss Coating	4406	1	1
ICI Paints (Canada)	Devoe	Tru-Glaze-WB	4408	1	1
Insl-X	AllPro	Pro Water Based Epoxy	AP4300-12231	1	1
Insl-X	Insl-X	Aquatile WB Epoxy	AT-A100	2	2
Miller Paint CGI	PPG	Aquapon Water Base Epoxy	98-1 Series	1	1
Mobile Paint	MoPoxY H2O-200	Waterborne Epoxy -White	69-AW-6	2	2
Parker Paint CGI	Ameron	Amercoat 335	335	1	1
Porter Paints	Dura-Glaze	Waterborne Gloss Epoxy	9371	1	1
PPG	Aquapon	Water Base Epoxy	98-1 Series	1	1
Spectra-Tone CGI	Insl-X	Aqua-Tile W.B. Epoxy	AT-A100	2	2
Vista Paint	Rust-Oleum	W/B Epoxy Floor Coating	6000 Series		

MPI #127 Exterior Latex Deck Coating

A water based, acrylic emulsion type, high solids coating for exterior concrete, plywood and fiberglass coated decks. Applied as a system including imbedded tape on all joints, edges and cant strips and a textured, non-slip base coat (if specified). Specified for use in residential and light traffic commercial and public locations. Primary application is by roller or in small areas, by brush. Specifiers and users of this coating should refer to manufacturer's technical data for specific surface preparation, application recommendations and limitations.

*[See MPI '**Intended Use**' Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <101 g/L	E2 101 — 150 g/L	E1 151 — 200 g/L	Blanks may indicate information unavailable.

Listing Brand	Label	Product Name	Code	E Range
Cloverdale Paint		Latex Deck Coating	2270	
Fabrikem		Fabrikote 2000		
General Paint CGI	Spantex	Roll-on Texture/Top Coat	46 Line	3
ICI Paints (Canada)	Deck-Cote	Acrylic Deck Coating		3
Kryton		Cr Deck-Gard 21	K-942	
Northern Paint	Timberlox	Acrylic Latex Deck Stain	58 Line	2
Parker Paint CGI	Monochem	Dex Coat		
PPG	Rez	Exterior Latex Deck Coating	77-435	1
Sherwin Williams	Armorseal TreadPle	Acrylic Water Based Floor Coating	B90 Series	2

MPI #60 Interior/Exterior Latex Porch & Floor Paint - Low Gloss

An abrasion-resistant, latex type, pigmented paint for new interior and exterior horizontal concrete and primed wood surfaces not prone to water permeation from below. Coating must be alkali and water resistant to incidental splash and spillage. Primarily specified for use in low to medium traffic, residential and commercial locations. Surface preparation requires removal of all previous sealers and water retaining materials applied to the surface. Smooth concrete must be acid etched. Designed to be used with or without non-slip aggregate. Application methods will include using brushes, rollers, and airless and conventional spray equipment.

*[Characteristics reviewed include hiding power and gloss levels of maximum 25 units @ 60 degrees, accelerated weathering, flexibility, water and abrasion resistance. See MPI '**Detailed Performance**' Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <101 g/L	E2 101 — 150 g/L	E1 151 — 200 g/L	Blanks may indicate information unavailable.

Listing Brand	Label	Product Name	Code	E Range
California Paints	California Paints	Multi-Purpose Acrylic Enamel	52800	
Coronado Paint	Tough Shield	Acrylic Floor & Patio Coating	52-1	
Devoe Fuller	Porch and Floor	Acrylic Floor Enamel	DR78-XX	2
Devoe Fuller	Porch and Floor	Acrylic Floor Enamel	FOB 631-XX	2
General Paint CGI	General Paint	Acrylic Latex Int/Ext Porch & Floor	41-010	3
ICI Dulux Paints	Ultra Hide	Int/Ext 100% Acrylic Floor Enamel	3018-0100	2
ICI Paints (Canada)	Color Your World	Latex Floor Paint	4700	2
ICI Paints (Canada)	Glidden Paint	Latex Floor Paint	93800	2
Sherwin Williams	Sherwin Williams	Acrylic Latex Floor Enamel	A24A11	3

NON FLATS

MPI #144 Institutional Low Odor/VOC Interior Latex - Gloss Level 2 (a 'velvet-like' finish)

Note: Requires a properly-prepared Level 4 drywall finish (i.e. assuming no critical lighting conditions).
See "Recommended Levels of Drywall Finishing - GA-214-96"

A white or colored latex paint with low odor characteristics and a VOC of less than 10 grams per liter. For use in areas such as hospitals and other occupied buildings where the odor and VOC levels of conventional latex products would preclude their use.

*[Characteristics evaluated include gloss levels of maximum of 10 units @ 60 degrees and sheen of 10-35 units at 85 degrees, hiding power, scrubbability, alkali resistance, reflectance, flexibility and soil removal. See MPI '**Detailed Performance**' Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <11 g/L			Blanks may indicate information unavailable.

EPP is **MPI EPP Rating** which factors in **Relative Category Performance & Gloss/Sheen Performance**, **OFP**, and **Appropriate Specified Use**

Listing Brand	Label	Product Name	Code	E	EPP
Cloverdale Paint	Performance Plus	Low Odor/Voc Eggshell Latex	14403	3	4.5
ICI Paints (Canada)	Dulux Inspirations	Interior Acrylic Eggshell	9200	3	4.5
ICI Paints (Canada)	CIL	Select - Int. Acrylic Eggshell	7150	3	4.5
ICI Paints (Canada)	Dulux Lifemaster	Interior Acrylic Eggshell	59311	3	4.5
Kelly-Moore	Enviro-Cote	Int.Acrylic Satin	1510	3	4.5
Sherwin Williams	Harmony	Interior Latex Eg-Shell	B9W51	3	4.5

MPI #44 Interior Latex, Gloss Level 2 — (a high side sheen flat, 'velvet-like')

Note: Requires a properly-prepared Level 4 drywall finish (i.e. assuming no critical lighting conditions). See "Recommended Levels of Drywall Finishing - GA-214-96"

A white, or colored, waterborne latex-based paint with a low sheen finish. Used on primed/sealed interior plaster and gypsum board, and on primed wood and metals.

*[**Gloss level must be a maximum of 10 units @ 60 degrees and sheen 10 to 35 units @ 85 degrees.** Other evaluated characteristics include consistency/viscosity, dry time, fineness of grind, hiding power by contrast ratio method, reflectance, alkali resistance, flexibility, scrubbability, and sealing properties. See MPI **'Detailed Performance'** Specs for complete details, specific requirements, and/or references.]*

MPI VOC Ranges (grams/L.)	E3 <101 g/L	E2 101 — 150 g/L	E1 151 — 200 g/L	Blanks may indicate information unavailable.

EPP is **MPI EPP Rating** which factors in **Relative Category Performance & Gloss/Sheen Performance**, **OFP**, and **Appropriate Specified Use**

Listing Brand	Label	Product Name	Code	E	EPP
Benjamin Moore (Can)	Moorespec	Int. Acrylic Latex Eggshell	592-1B	2	2
Benjamin Moore	Moorcraft	Super Spec Latex Eggshell Enamel	274	1	1
Cloverdale Paint		Int. Super Eggshell Acrylic Latex	032 Series	2	2
Color Wheel CGI	Optima	Satin Supreme	230	3	3
Columbia Paint CGI	Premium Pro	Acry-Plus Velvet	02-256-WB	1	1
Coronado Paint	Tough Walls	The True Latex Eggshell Enamel	34 Line		
Davis Frost CGI	Davis Paint	ProMax Interior Latex	3200 Series	1	1
Dunn-Edwards	Suprema	Interior Low Sheen Wall Paint	W 411	2	2
Duron CGI	Ultra Delux	Int. Acrylic Latex Low Sheen Enamel	36-916	1	1
Farrell-Calhoun CGI		Interior Premium Eggshell Enamel	370 Line		
Flex Bon Paints CGI		Int. Satin Acrylic Wall & Trim Paint	47-1	2	2
General Paint CGI	Breeze	Eggshell Latex	55-010	2	2
General Paint CGI	Tradesman	Eggshell Latex	28-035	3	3
General Paint CGI	Premium	Hi Hide Eggshell Latex	55-020	2	2

Hallman Lindsay	Pro Kote	Latex Eggshell Enamel	284	3	3
Hallman Lindsay	Signature Lustre-Kote	100% Acrylic Lo-Sheen Enamel	280	3	3
Hirshfields Paint CGI	ProWall 1000	Top Scrub	2090	2	2
ICI Dulux Paints	Ralph Lauren	Int. Satin Premium Acrylic Latex	RL1291	2	2
ICI Dulux Paints	Dulux Professional	Interior Latex Eggshell	1402 Series	3	3
ICI Dulux Paints	Dulux Ultra	Eggshell Acrylic Int. Wall & Trim	1403-0100	3	3
ICI Paints (Canada)	CYW Designer's Touch	Low Sheen Latex Eggshell	3665	3	3
ICI Paints (Canada)	CIL	Professional - Int. Latex Eggshell	9490	3	3
ICI Paints (Canada)	Glidden Ultra	Int. Latex Eggshell	94900	3	3
ICI Paints (Canada)	Glidden	Dulux Acrylic Latex Eggshell	14010	2	2
Iowa Paint CGI	Master Series	Eggshell Enamel	2350	3	3
Kelly-Moore	Enviro-Cote	Interior Latex Low Sheen	1510	3	3
Kelly-Moore		Sat-N-Sheen Interior Latex Low Sheen	1610	2	2
Kwal-Howells CGI	Accu-Tone	Eggshell Interior Latex Enamel	1903	2	2
Miller Paint CGI		Pro-Jex Eggshell	1880	3	3
Mills Paint	Superior Quality	Interior Eggshell Latex	1000 Series	3	3
Northern Paint	Colorlox	Int. Velvet Latex	43 Line	1	1
Northern Paint	Northern Paint	Interior Eggshell Latex	5200		
Para Paints	Premium	Interior Low Lustre Eggshell	9100	3	3
Para Paints	Ultra	Interior Eggshell Latex	8090*	2	2
Parker Paint CGI	Pro Satin	Interior Latex Satin Gloss Enamel	5750	2	2
Porter Paints	Painters' Friend	Interior Latex Wall & Trim Paint	6075	2	2
PPG	Speedhide	Interior Latex Egghsell	6-411	3	3
Rodda Paint	Master Painter	Interior Pearl Lustre Latex	563101X	3	3
Sherwin Williams	Quali-Kote	Interior Low Sheen Latex	B20WQ8004	3	3
Sherwin Williams	ProMar 200	Interior Latex Eg-Shell	B20W200	2	2
Spectra-Tone CGI	Jobmaster	Spectra-Tough Lo-Eggshell Enamel	593	2	2

Tower Paint	Premium Eggshell Latex	370500	1	1
Vista Paint	Carefree Velva Sheen	8200	3	3

MPI #138 High Performance Architectural Latex - Gloss Level 2 (a 'velvet-like' finish)

Note: Requires a properly-prepared Level 4 drywall finish (i.e. assuming no critical lighting conditions).
See "Recommended Levels of Drywall Finishing - GA-214-96"

A high performance architectural latex coating, Gloss Level 2 (a 'velvet-like' finish). Designed to provide a significantly higher level of performance than conventional latex paints in the areas of scrub resistance, burnish resistance, and ease of stain removal.

*[Characteristics evaluated include gloss levels of maximum 10 units @ 60 degrees and 10-35 units at 85 degrees, hiding power, scrubbability, stain removal, burnish resistance, flexibility, and application properties. See MPI '**Detailed Performance**' Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <101 g/L	E2 101 — 150 g/L	E1 151 — 200 g/L	Blanks may indicate information unavailable.

EPR - Environmental/Performance Rating (VOC & Relative Performance of Category+Gloss & Appropriate Specified Use). L &Mac178; LEED level.

Listing Brand	Label	Product Name	Code	E	EPP
California Paints	Fresh ™ Coat	100% Acrylic Latex Eggshell Enamel	53100		
Cloverdale Paint	Acrylic Kitchen &	Low Luster Enamel	03620	1	4
Cloverdale Paint	Performance Plus 2100	Acrylic Velvet Latex	04153	1	4
Devoe Fuller	AA Acrylic	Interior Acrylic Eggshell	FOB 212-XX	2	5
General Paint CGI	Hi-Performance 200	Eggshell	58-030		
ICI Dulux Paints	Ultra	Acrylic Interior Wall & Trim Enamel	1403-0110	2	5
ICI Paints (Canada)	ICI Dulux	Int. Acrylic low Sheen Eggshell	14030	2	5
Northern Paint	Colorlox	Super Acrylic II Eggshell Enamel	43-51		
Sherwin Williams	Superpaint	Satin Latex	6401-55073		

MPI #139 High Performance Architectural Latex - Gloss Level 3 (an 'eggshell-like' finish)

Note: Requires a properly-prepared Level 5 drywall finish.
See "Recommended Levels of Drywall Finishing - GA-214-96"

A high performance architectural latex coating, Gloss Level 3 (an 'eggshell-like' finish, similar to Alkyd eggshell). Designed to provide a significantly higher level of performance than conventional latex paints in the areas of scrub resistance, burnish resistance, and ease of stain removal.

*[Characteristics evaluated include gloss levels of 10-25 units @ 60 degrees and 10-35 units at 85 degrees, hiding power, scrubbability, stain removal, burnish resistance, flexibility, and application properties. See MPI '**Detailed Performance**' Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <101 g/L	E2 101 — 150 g/L	E1 151 — 200 g/L	Blanks may indicate information unavailable.

EPP is **MPI EPP Rating** which factors in **Relative Category Performance & Gloss/Sheen Performance**, **OFP**, and **Appropriate Specified Use**

Listing Brand	Label	Product Name	Code	E	EPP
Columbia Paint CGI	Hi-Performance	Acri-Shield Eggshell Enamel	01-265	1	4
Kelly-Moore	Dura-Poxy	Eggshell Acrylic Enamel	1686-111		
Parker Paint CGI	Velva Kolor	Interior Eggshell Latex	4650	2	5

MPI #15 Exterior Latex, Low Sheen (MPI Gloss Level 3/4)

A latex based, low sheen paint for use on new and previously painted surfaces, including stucco, concrete or wood. This product is not designed for application to unprimed wood surfaces. Where extractive bleeding may be encountered, a stain blocking primer such as MPI 5, 6, or 7 must be employed. This product is alkali resistant for use on masonry surfaces, and mildew resistant. Other primers used with this coating include MPI 3 for alkaline surfaces, MPI 4 for concrete block, self-priming on concrete and stucco. Not recommended for horizontal surfaces where water may pond or stand.

*[Gloss must be a minimum of 10 units and a maximum 35 units @ 60 degrees. Other evaluated characteristics include dry time, fineness of grind, hiding power by contrast ratio method, reflectance, flexibility, scrubbability, early water resistance, resistance to biological growth, and accelerated weathering. See MPI **'Detailed Performance'** Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <151 g/L	E2 151 — 200 g/L	E1 201 — 250 g/L	Blanks may indicate information unavailable.

Listing Brand	Label	Product Name	Code	E Range
Benjamin Moore	Moorcraft	Super Spec 100% Acrylic Ext. Satin	0184	2
Columbia Paint CGI	Premium Pro	Ext.100% Acrylic Low Lustre Latex	01-224-WB	2
Dunn-Edwards	Enduracryl	Ext. Acrylic Low Sheen	W705	3
Flex Bon Paints CGI	Flex Bon Paint	Acrylic House and Trim - Low sheen	04-1	3
PPG	Sun-Proof	Ext. House and Trim Satin Latex	76-45	3
Rodda Paint	Unique II	Low Gloss Ext./Int. Latex Enamel	53 2001 1	3
Sherwin Williams	Sherwin Williams	A-100 Exterior Latex Satin	A82W510	3

MPI #43 Interior Latex, Gloss Level 4 - (a 'satin-like' finish)

Note: Requires a properly-prepared Level 4 drywall finish.
See "Recommended Levels of Drywall Finishing - GA-214-96"

A white, or colored, waterborne latex-based paint with a finish between a traditional eggshell and semi-gloss. Used on primed/sealed interior plaster and gypsum board, and on primed wood and metals.

*[**Gloss must be 20 to 35 units @ 60 degrees and sheen minimum 35 units @ 85 degrees.** Other evaluated characteristics include consistency/viscosity, dry time, fineness of grind, hiding power by contrast ratio method, reflectance, alkali resistance, flexibility, scrubbability, and sealing properties. See MPI '**Detailed Performance'** Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <101 g/L	E2 101 — 150 g/L	E1 1 51 — 200 g/L	Blanks may indicate information unavailable.

EPP is **MPI EPP Rating** which factors in **Relative Category Performance & Gloss/Sheen Performance**, **OFP**, and **Appropriate Specified Use**

Listing Brand	Label	Product Name	Code	E	EPP
Columbia Paint CGI	Premium Pro	Acry-Plus Int. Latex - Eggshell	02-255	1	1.5
Davis Frost CGI	Davis Paint	Weather Hide Satin House & Trim	1500 Series	3	3.5
Dunn-Edwards	Spartashell	Int./Ext. Acrylic Eggshell	W 7400	3	3.5
Hallman Lindsay	Signature Lustre-Kote	100% Acrylic Satin Enamel	285	3	3.5
Hallman Lindsay	Pro Kote	Latex Satin Enamel	294	3	3.5
Kelly-Moore		Acry-Plex Int. Latex Eggshell Enamel	1640	1	1.5
Sherwin Williams	ProMar 200	Interior Latex Semi-Gloss	B31W200	2	2.5

MPI #141 High Performance Architectural Latex - Gloss Level 5 (Semi-Gloss)

Note: Requires a properly-prepared Level 5 drywall finish.
See "Recommended Levels of Drywall Finishing - GA-214-96"

A high performance architectural latex coating, Gloss Level 5 - Semi-Gloss. Designed to provide a significantly higher level of performance than conventional latex paints in the areas of scrub resistance, burnish resistance, and ease of stain removal.

*[Characteristics evaluated include gloss levels of 35-70 units @ 60 degrees, hiding power, scrubbability, stain removal, burnish resistance, flexibility, and application properties. See MPI '**Detailed Performance**' Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <101 g/L	E2 101 — 150 g/L	E1 151 — 200 g/L	Blanks may indicate information unavailable.

EPP is **MPI EPP Rating** which factors in **Relative Category Performance & Gloss/Sheen Performance**, **OFP**, and **Appropriate Specified Use**

Listing Brand	Label	Product Name	Code	E	EPP
Benjamin Moore	Benjamin Moore	DTM Acrylic Semi-Gloss	M29-08		
Cloverdale Paint	Acry-Kitchen & Bat	Semigloss Enamel	03650		
Dunn-Edwards	Permasheen	100% Acrylic Semi-Gloss	W901		
General Paint CGI	Hi-Performance 200	Semigloss	58-020		
ICI Dulux Paints	Ralph Lauren	Int. Semi-Gloss Premium Acrylic Late	RL 1391	1	5
Kelly-Moore	Dura-Poxy	Semigloss Acrylic Enamel	1685-111		
Kwal-Howells CGI	Ambassador	Semi-Gloss Block Resistant Enamel	3200	2	6
Northern Paint	Super Acrylic	Semi-Gloss Enamel	44-51		
Rodda Paint	Rodda Paint	Unique II Semi-Gloss	542001X	2	6
Spectra-Tone CGI	Gold Label	Semi-Gloss Gold Acrylic Enamel	997	2	6

MPI #147 Institutional Low Odor/VOC Interior Latex - Gloss Level 5 (Semi-Gloss)

Note: Requires a properly-prepared Level 5 drywall finish.
See "Recommended Levels of Drywall Finishing - GA-214-96"

A white or colored latex paint with low odor characteristics and a VOC of less than 10 grams per liter. For use in areas such as hospitals and other occupied buildings where the odor and VOC levels of conventional latex products would preclude their use.

*[Characteristics evaluated include gloss levels of 35-70 units @ 60 degrees, hiding power, scrubbability, alkali resistance, reflectance, flexibility and soil removal. See MPI '**Detailed Performance**' Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <11 g/L			Blanks may indicate information unavailable.

EPR - Environmental/Performance Rating (VOC & Relative Performance of Category+Gloss & Appropriate Specified Use). L &Mac178; LEED level.

Listing Brand	Label	Product Name	Code	E	EPR
California Paints	Fresh Coat	Low VOC Acrylic Latex Semi-Gloss	66391	3	5
Duron CGI	Genesis Odor Free	High-Performance Int. Latex S.G.	3-914	3	5
Hallman Lindsay	Signature	Low Odor Interior Latex Semi-Gloss	281	3	5
ICI Paints (Canada)	Dulux Lifemaster	Interior Acrylic Semi-Gloss	59211	3	5
ICI Paints (Canada)	Dulux Inspirations	Interior Acrylic Semi-Gloss	9300	3	5
ICI Paints (Canada)	CIL	Select - Interior Acrylic Semi-Gloss	7250	3	5
Kelly-Moore	Enviro-Cote	Int. Acrylic Semi-Gloss	1520	3	5
Miller Paint CGI	Miller Paint	Acro Latex Semi-Gloss	2850	3	5
Sherwin Williams	Harmony	Interior Latex Semi-Gloss	B10W951	3	5

MPI #11 Exterior Latex, Semi-Gloss

A pigmented, water based, emulsion type, semi-gloss paint for exterior masonry, stucco, primed metals and wood, (primarily trim, fascia and smooth surfaces e.g. doors and door frames) where low to moderate contact can be anticipated. Alkali resistant for use on masonry surfaces and mildew resistant. Primers used with this coating include MPI #3, for alkaline surfaces, #4 for concrete block, self-priming on stucco and concrete, and #5, #6 and #7 for wood surfaces. Not recommended for horizontal surfaces, where water may pond or stand. Application methods will include using brushes, rollers, and airless and conventional spray equipment.

*[Characteristics evaluated include hiding power, flexibility, accelerated weathering, resistance to biological growth, and gloss of 35-70 units @60 degrees. See MPI '**Detailed Performance**' Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <151 g/L	E2 151 — 250 g/L	E1 251 — 380 g/L	Blanks may indicate information unavailable.

Listing Brand	Label	Product Name	Code	E Range
California Paints	Fresh Coat	Acrylic House & Trim Satin	47100	1
Color Wheel CGI	Contractor's Choice	Tropicoat House Paint	320	2
Coronado Paint	Supreme Collection	Acrylic Semi-Gloss House Paint	12-1	2
Devoe Fuller	Wonder Shield	Acrylic Gloss House $ Trim	DR 18-XX	2
Devoe Fuller	Weather King II	Exterior Acrylic Semi-Gloss	FOB 664-XX	2
Dunn-Edwards	Permasheen	Int/Ext Acrylic Semi-Gloss	W901	2
Duron CGI	Weathershield	Ext. Acrylic House Paint S.G.	03-914	2
Farrell-Calhoun CGI	Farrell-Calhoun	Gloss Latex House Paint	2400	3
Flex Bon Paints CGI	Flex Bon Premium	100% Acrylic House and Trim	95-1	3
General Paint CGI	General Paint	Breeze Latex Exterior Semi-Gloss	71-010	3
Hallman Lindsay	Duratech	100% Acrylic Satin Enamel	318	3
ICI Dulux Paints	Dulux	Dulux Professional	2407-0110	2
ICI Dulux Paints	Dulux Professional	Exterior Acrylic Semi-Gloss	2416-0110	3
ICI Dulux Paints	Dulux Professional	Exterior 100% Acrylic Semi-Gloss	2406-0110	2
ICI Paints (Canada)	CYW Outsider	Outsider Latex Semi-Gloss	7000	2
ICI Paints (Canada)	Dulux Weatherguard	Exterior Acrylic Latex Semi-Gloss	1550	2
ICI Paints (Canada)	CIL	Select- Exterior Acrylic Semi-Gloss	7450	2
Kelly-Moore	Acry-Lustre	Ext. Semi-Gloss Acrylic Finish	1250-121	2
Parker Paint CGI	Flex Glow	Ext. Acrylic Latex S.G.	360	2
Rodda Paint	Unique II	Semi-Gloss Exterior Latex Enamel	54 2001 1	3
Sherwin Williams	Sherwin Williams	A-100 Exterior Gloss Latex	A8W16	3

MPI #114 Interior Latex, Gloss *

A water based, acrylic co-polymer emulsion type, pigmented, gloss coating for interior primed wood, plaster, masonry, concrete, trim and wall surfaces. Application methods will include using brushes, rollers, and airless, HVLP and conventional spray equipment.

*[Gloss must be minimum 65 units @ 60 degrees and fineness of grind - 6 Hegman units. Other evaluated characteristics include consistency/viscosity, dry time, hiding power by contrast ratio method, reflectance, flexibility, scrubbability, sealing properties, water resistance, alkali resistance, and blocking resistance. See MPI '**Detailed Performance**' Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <101 g/L	E2 101 — 200 g/L	E1 201 — 300 g/L	Blanks may indicate information unavailable.

EPR - Environmental/Performance Rating (VOC & Relative Performance of Category+Gloss & Appropriate Specified Use). L &Mac178; LEED level.

Listing Brand	Label	Product Name	Code	E	EPP
Benjamin Moore	Benjamin Moore	DTM Acrylic Gloss Enamel	M28	1	2
California Paints	Larcoloid	100% Acrylic Latex Gloss	511XX-Series	1	2
Cloverdale Paint		Kitchen and Bathroom Hi Gloss Latex	3670	1	2
Color Wheel CGI	Optima	Supreme Semi-Gloss Enamel	360	2	3
Columbia Paint CGI	High Performance	Acry-Shield Gloss Enamel	01-260	1	2
Coronado Paint	Rust Scat	Acrylic Latex High Gloss Enamel	80 Line	1	2
Devoe Fuller	Mirrolac-WB	HP Acrylic WB Gloss Enamel	DP84XX	2	3
Dunn-Edwards	Permagloss	100% Acrylic Gloss	W960	1	2
Flex Bon Paints CGI		Interior-Exterior Gloss 100% Acrylic	99-1	2	3
Frazee CGI		Mirro Glide Gloss	143	1	2
General Paint CGI		Envirogard	15-010	1	2
ICI Devoe	ICI Devoe	Devflex W.B. Acrylic Gloss Enamel	4208	1	2
ICI Dulux Paints	Devoe	Devflex W.B. Acrylic Gloss Enamel	4208-	3	4
ICI Paints (Canada)	CYW Designer'sTouch	Gloss Latex	3750	2	3
ICI Paints (Canada)	Glidden Ultra	Gloss Enamel	1000		
ICI Paints (Canada)	CIL	Professional Interior Acrylic Gloss	9640		
Insl-X	Amor-Grip	DTM Acrylic Enamel	LE-7510	2	3
Kelly-Moore		Dura-Poxy Gloss Acrylic Enamel	1680	1	2
Kwal-Howells CGI	Ambassador	Acrylic Gloss Block Resistant Enamel	8400	3	4
Miller Paint CGI	Miller Paint	Acrinamel Gloss	7300	1	2
Mills Paint	Enviro-Lac Legacy	Acrylic Water Borne Gloss	2600	3	4
Northern Paint	Colorlox	Super Acrylic Gloss Enamel	45 Line	2	3
Para Paints	Insl-X	Insl-Thane Acrylic Gloss	LE-7500	2	3
Porter Paints	Pro-Master 2000	Interior Gloss Acrylic Wall & Trim E	6149	2	3
Rodda Paint	Rodda Paint	Uniqe II Gloss	552001X	2	3
Sherwin Williams	ProClassic	Waterborne Interior Acrylic Gloss	B21-20	2	3
Sico Coatings	Rust-Oleum	H.P. Acrylic	5200	1	2
Spectra-Tone CGI	Gold Label	Gloss Gold Latex House & Trim Enamel	351	2	3
Spectra-Tone CGI	Jobmaster	Spectra-Tough Gloss Enamel	592	2	3

***Some of the products listed may be labeled as IM coatings. The AQMD requires that the intended use of the product must be specified on the label; therefore, these products under this category should indicate they are non-flat high gloss coatings.**

MPI #119 Exterior Latex, Gloss *

A water-based, acrylic co-polymer emulsion type, gloss, pigmented coating for exterior primed wood and metal trim, sash, frames and doors. Must be mildew resistant. Application methods will include using brushes, rollers, and airless and conventional spray equipment.

*[Gloss must be a minimum of 65 units @ 60 degrees. Other evaluated characteristics include consistency/viscosity, dry time, hiding power by contrast ratio method, fineness of grind, reflectance, flexibility, sealing properties, early water resistance, alkali resistance, scrubbability, blocking resistance, and accelerated weathering. See MPI '**Detailed Performance**' Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <151 g/L	E2 151 — 250 g/L	E1 251 — 300 g/L	Blanks may indicate information unavailable.

Listing Brand	Label	Product Name	Code	E Range
Columbia Paint CGI	High Performance	Acry-Shield Gloss Enamel	05-260	2
Devoe Fuller	Mirrolac-WB	HP Acrylic WB Gloss Enamel	DP84	2
Dunn-Edwards	Permagloss	Int/Ext Acrylic Gloss	W960	2
Flex Bon Paints CGI		Interior-Exterior Gloss 100% Acrylic	99-1	2
ICI Devoe	ICI Devoe	Devflex 4208	4208-	3
ICI Dulux Paints	Devoe Coatings	Devflex 4208	4208-	3
ICI Paints (Canada)	Devoe Coatings	Devflex	4208	3
Insl-X	Amor-Grip	DTM Acrylic Enamel	LE-7510	3
Kelly-Moore		Guard Acrylic Gloss Enamel	1780	2
Northern Paint	Colorlox	Super Acrylic Gloss Enamel	15008	2
Para Paints	Insl-X	Insl-Thane II Acrylic Gloss	LE-7500	3
Rodda Paint	Rodda	Uniqe II Gloss	552001	2
Sherwin Williams	SuperPaint	Exterior High Gloss Latex Enamel	A85	3
Sico Coatings	Rust-Oleum	H.P. Acrylic	5200	2
Tower Paint		Solv Free	T1000	2
Vista Paint		Carefree Gloss	8500	3

***Some of the products listed may be labeled as IM coatings. The AQMD requires that the intended use of the product must be specified on the label; therefore, these products under this category should indicate they are non-flat high gloss coatings.**

ZINC-RICH INDUSTRIAL MAINTENANCE PRIMERS

MPI #20 Epoxy Zinc Primer

A solvent based, two or three component, epoxy type anticorrosive primer for cleaned new or repaired ferrous metal surfaces exposed to moderate industrial or marine environments. Must be top-coated to attain maximum protective qualities. Specified top coats include MPI #110 High Performance Acrylic, MPI# 77 Cold Cure Epoxy and MPI # 98 and #108 High Build Epoxy. Minimum recommended surface preparation is SSPC SP-6 Commercial Blast, but in some repainting work, hand or power tool cleaning may be the maximum attainable. Application is primarily airless and conventional spray, but brushes or rollers may be used for small detail or touch-up work.

*[Characteristics reviewed include metallic zinc content and corrosion resistance. See MPI '**Intended Use**' Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <301 g/L	E2 301 — 400 g/L	E1 401 — 500 g/L	Blanks may indicate information unavailable.

Listing Brand	Label	Product Name	Code	E Range
Cloverdale Paint		ClovaZinc 3	83003	1
Columbia Paint CGI	Carboline	Carboline 861	861	2
Coronado Paint		Polyamide Epoxy Zinc Rich Primer	101-152	
Dunn-Edwards	International	Interzinc 52	EPA 175	2
Frazee CGI		Ameron	68HS	3
General Paint CGI	Ameron	68 H.S. - Epoxy Zinc Rich Coating	96 Line	3
Griggs Paint		Epoxy Zinc Rich Primer	600A75	3
ICI Devoe	ICI Devoe	Catha-Coat 313	313	3
ICI Dulux Paints	Devoe Coatings	Catha-Coat 313	313	3
ICI Paints (Canada)	Devoe	Catha-Cote	313	3
Miller Paint CGI	PPG	Aquapon Zinc Rich Primer	97-670	1
Parker Paint CGI	Ameron	Amercoat Zinc Rich Epoxy Primer	68HS	3
Porter Paints	Porterzinc 3000	Zinc Rich Epoxy Primer	3000	1
PPG	Aquapon	Epoxy Zinc Rich Primer	97-670	1
Sherwin Williams	Zinc Clad IV	Organic Zinc-Rich Epoxy Primer	B69A8/V8	2
Sico Coatings	Rust-Oleum	Zinc-Sele	9334	

Sigma	Sigmarite Zinc Primer	7401	3
TCI Coatings	Tec Zinc Epoxy	TZ-201/A/B/C	1

PRIMERS, SEALERS, & UNDERCOATERS

MPI #137 Stain Blocking Primer, W.B.

A waterborne, pigmented primer designed for use on interior wood and on gypsum wallboard as a stain sealer. This product may be used for new and repainting work in residential, commercial and light industrial areas. Finish coats used over this primer will include latex and alkyd based paints. Application methods include brushes, roller and airless and conventional spray equipment.

*[See MPI '**Intended Use**' Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <101 g/L	E2 101 — 150 g/L	E1 151 — 200 g/L	Blanks may indicate information unavailable.

Listing Brand	Label	Product Name	Code	E Range	EPR
Cloverdale Paint	Cloverdale	Acrylic Stain Blocking Primer	05130		
Columbia Paint CGI	Insl-X	Aqua Lock	AQ-0500	2	2
Columbia Paint CGI	Masterpiece	Acry-Prime Interior/Exterior Primer	05-200-PP	3	3
Hallman Lindsay	Stainguard	100% Acrylic Stain Blocker Primer	526	3	3
ICI Paints (Canada)	Glidden Ultra Hide	Aquaacrylic Gripper	250	3	3
ICI Paints (Canada)	Color Your World	Acrylic Blokker	8791	3	3
ICI Paints (Canada)	CIL	Professional - Int. Acrylic Stain Bl	2050	3	3
Mobile Paint	Stop Stain 2	Latex Primer Sealer	219-15	3	3
Parker Paint CGI	Zinnser	Bulls-Eye 123		3	3

MPI #50 Interior Latex Primer Sealer

A white, pigmented, waterborne latex sealer used on new interior plaster, concrete and gypsum wallboard surfaces that are subsequently painted with latex or alkyd finish coat(s). Its purpose is to reduce the porosity of the substrate for finish coats. Not intended for use on wood.

*[Evaluated characteristics include consistency/viscosity, dry time, fineness of grind, hiding power by contrast ratio method, reflectance, alkali resistance holdout properties, and sanding properties. See MPI '**Detailed Performance**' Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <101 g/L	E2 101 — 150 g/L	E1 151 — 200 g/L	Blanks may indicate information unavailable.

EPR - Environmental/Performance Rating (VOC & Relative Performance of Category+Gloss & Appropriate Specified Use). L &Mac178; LEED level.

Listing Brand	Label	Product Name	Code	E Range	EPR
Benjamin Moore (Can)	Moorespec	Int. Acrylic Latex Primer/Sealer	586-00	2	2
Benjamin Moore	Regal	First Coat Latex Primer/Undercoater	216	3	3
Benjamin Moore	Moorcraft	Latex Undercoater & Primer Sealer	253-00	3	3
California Paints	ProPrime	Latex Primer White	54500	1	1
Cloverdale Paint		Interior Latex Primer Sealer	05250	3	3
Color Wheel CGI	Contractor's Choice	Ti-Gard Interior Sealer	430	3	3
Columbia Paint CGI	Premium Pro	Interior Latex Enamel Undercoater	02-735-PP	3	3
Columbia Paint CGI	Insl-X	Waterbase Primer/Sealer/Stain Killer	AQ-0500	2	2
Coronado Paint	Super Kote 5000	Latex Primer-Sealer	40-11		
Devoe Fuller	Wonder-Tones	Int. Vinly Latex Primer-Sealer	DR50801	2	2
Dunn-Edwards	Eff-Stop	Acrylic Masonry Primer/Sealer	W 709	2	2
Duron CGI	Duron Paints	Interior Acrylic Drywall Primer	04-124	2	2
Duron CGI	Duron Paints	Interior Acrylic Latex Undercoater	04-123	2	2
Farrell-Calhoun CGI	Perfik-Seal	Interior Latex Primer-Sealer	380		
Flex Bon Paints CGI		Interior Alkyd Latex Primer	107-1	3	3

Frazee CGI	Aqua Seal	Interior Viyl Acrylic Wall Sealer	061	2	2
General Paint CGI	Breeze	Super Seal Latex	51-087	2	2
General Paint CGI	Tradesman	Latex Sealer	28-080	2	2
Hirshfields Paint CGI	Drywall Primer	Interior Latex	1250	2	2
ICI Dulux Paints	Dulux Ultra	PVA Interior Primer Sealer	1030-1200	3	3
ICI Dulux Paints	Ultra Hide	Interior Latex Wall Primer	1000-1200	2	2
ICI Paints (Canada)	Glidden	Dulux Interior Latex Sealer	11000	3	3
ICI Paints (Canada)	Color Your World	Latex Primer	9650	3	3
Insl-X	Aqualock	Waterbase Primer/Sealer/Stain Killer	AQ-0500	2	2
Iowa Paint CGI	Prime Line	Hi Hide PVA Primer	516	3	3
Kelly-Moore	Acry-Prime	Interior Latex Primer Sealer	971	2	2
Kelly-Moore	Enviro-Cote	Interior Latex Primer	1505	3	3
Kwal-Howells CGI	Accu-Pro	Interior Latex Flat Drywall Primer	0890	3	3
Miller Paint CGI		Kril Primer Sealer	6040	2	2
Mills Paint	Superior Quality	Interior Latex Primer Sealer	133	3	3
Northern Paint	Colorlox	Hi Hide Latex Primer	301-49	3	3
Para Paints		Prime Tech Hi-Hide Latex Primer	5799	3	3
Porter Paints	Painters' Friend	Interior Latex Primer/Sealer	767	2	2
Rodda Paint	Scotseal	Heavy Bodied Latex Sealer	50 7801 1	3	3
Sherwin Williams	PrepRite	Interior Latex Primer	B28W200	3	3
Sherwin Williams	Quali-Kote	Interior Latex Primer	B28WQ8001	3	3
Spectra-Tone CGI	Jobmaster	PVA Latex Primer Sealer	74	3	3

Tower Paint	Interior Latex Sealer	375220	2	2
Vista Paint	Seal Cote	155	3	3

MPI #6 Exterior Latex Wood Primer

A pigmented, white, water borne emulsion type wood primer for exterior wood surfaces. This primer is intended for use in coating systems using both latex and alkyd based finishing paints. Paint systems using this primer will be specified for new and repainting work in residential, commercial and light industrial applications. Application methods will include using brushes, rollers, and airless and conventional spray equipment. This primer is recommended for use on woods containing extractable staining materials such as cedar and redwood.

*[Characteristics evaluated include hiding power, flexibility, dry time and resistance to biological growth. See MPI '**Detailed Performance**' Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <101 g/L	E2 101 — 150 g/L	E1 151 — 200 g/L	Blanks may indicate information unavailable.

Listing Brand	Label	Product Name	Code	E Range
Benjamin Moore (Can)	Moorestyle	Ext. Acrylic Latex Primer	582-00	3
Benjamin Moore (Can)	Moore's	Latex Exterior Wood Primer	102-00	3
Benjamin Moore	Fresh Start	All-Purpose 100% Acrylic Primer	023	1
Benjamin Moore	Moorecraft	Super Spec Latex Exterior Primer	169-00	3
California Paints	Fresh Coat ™	Troubleshooter™ Acrylic Latex Primer	45100	1
Cloverdale Paint	Cloverdale Paint	Interior/Exterior Acrylic Latex Prim	05130	2
Color Wheel CGI	Optima	All Prime	330	3
Columbia Paint CGI	Premuim-Pro	Ext. 100% Acrylic Latex Primer	01-727-PP	2
Coronado Paint	Supreme Collection	Acrylic Bonding Primer	8-11	1
Devoe Fuller	Concrete Masonry	Exterior Acrylic Latex Primer	FOB 220-17	2
Devoe Fuller	Wonder Shield	Exterior Acrylic Latex Primer	DR1559	3
Dunn-Edwards	E-Z Prime	100% Acrylic Wood Primer	W708	2
Duron CGI	Duron Paints	Bond N- Seal Ext. Acrylic Latex Prim	08-124	3
Farrell-Calhoun CGI	Farrell-Calhoun	Acrylic Latex Undercoater	235	3
Flex Bon Paints CGI	Flex Bon	100% Acrylic Latex Primer	194-1	3
Frazee CGI	Frazee Paint	Ext. Acrylic Primer/Sealer/ Stain Ki	168	3
General Paint CGI	General Paint	Exterior Latex Wood Primer	70-002	3
Hallman Lindsay	Primeguard	Acrylic Exterior Primer	112	3
Hirshfields Paint CGI	Housecoat	Exterior 100% Acrylic Primer	4250	2
ICI Dulux Paints	Ultra Hide Durus	Exterior Acrylic Primecoat	2010-1200	2
ICI Dulux Paints	Ultra Hide Aquacry	Gripper Stain Killer Primer	3210-1200	3
ICI Dulux Paints	Dulux Professional	Exterior 100% Acrylic Latex Primer	2000-1200	3
ICI Dulux Paints	Dulux Exterior	Exterior Latex Primer	2001-1200	2
ICI Paints (Canada)	CYW Outsider	Exterior Latex Primer	5990	3
ICI Paints (Canada)	CIL	Professional - Ext. Latex Wood Prime	9531	3
ICI Paints (Canada)	Dulux Weatherguard	Ext.Latex Wood & Galv. MetalPrimer	1535	3
Iowa Paint CGI	Prime Line	A/P Acrylic Stain Blocking Primer	1025	2
Kelly-Moore	Stain Lock 11	Stain Resistant Acrylic Primer	255-100	2
Kwal-Howells CGI	Pro-Finish	A/P 100% Acrylic Primer Undercoat	5860	3
Miller Paint CGI	Miller Paints	Acri-Lite Primer	7052	2

Parker Paint CGI	Flex Prime	Exterior Latex Flat	2333	6
Rodda Paint	First Coat	Exterior Interior Latex Primer	50 1601 1	2
Sherwin Williams	A 100	Exterior Latex Wood Primer	B42W41	2
Spectra-Tone CGI	Lock Out	100% Acrylic Busan Primer	086	2

STAINS

MPI #16 Exterior Solid Color Latex Stain

A waterborne, solid hide, emulsion type, pigmented stain for primed or previously painted exterior vertical wood surfaces. Not intended over unsealed woods that may be prone to extractive bleeding, e.g. Cedar or redwood. Application by brush, roller and air or airless spray. Application can also be by commercial machine i.e. 'factory staining'.

[Gloss must be a maximum 10 units @ 60 degrees. Other evaluated characteristics include consistency/viscosity, dry time, fineness of grind, and resistance to biological growth, flexibility, early water resistance and accelerated weathering. See MPI ***'Detailed Performance'*** *Specs for complete details, specific requirements, and/or reference specs.]*

MPI VOC Ranges (grams/L.)	E3 <101 g/L	E2 101 — 150 g/L	E1 151 — 250 g/L	Blanks may indicate information unavailable.

Listing Brand	Label	Product Name	Code	E Range
Benjamin Moore	Moorwood	Acrylic Latex Solid Siding Stain	067	3
Benjamin Moore	Moorwood	Latex Solid Siding Stain	089	3
California Paints	Storm Stain	Solid Latex Stain (Exterior)	473XX-Series	1
Cloverdale Paint		Exterior Solid Colour Latex Stain	066 Series	2
Color Wheel CGI	Contractor's Choice	Tropicoat Solid Body Latex Stain	370T	3
Columbia Paint CGI	Wood Finish	Woodtech Latex Solid Color Stain	09-400-Line	3
Coronado Paint	Maxum	100% Acrylic Solid Color Stain	M2000 Series	2
Davis Frost CGI	Davis Paint	Weather Hide 100% Acrylic Stain	1400 Series	2
Devoe Fuller	All-Weather	Ext. WB Solid Color Stain	DF6XX	2
Dunn-Edwards	Acri-Flat	Ext. Wood Stain & Masonry Flat Paint	W 704	3
Duron CGI	Maxwood	Solid Color Acrylic Formula Stain	28-914	1
Farrell-Calhoun CGI		Exterior Latex Stain	260	
Flex Bon Paints CGI		Ext. 100% Acrylic Solid Wood Stain	490-2	2
Frazee CGI		Duratec II	203	2
General Paint CGI	Woodcraft	Solid Color Acrylic Latex Stain	72 Line	2
ICI Dulux Paints	Sinclair Paint	Acrylic Stainteke Solid Stain	SA-4700	1
ICI Dulux Paints	Woodpride	Exterior Solid Stain	2600 Series	1
ICI Paints (Canada)	Woodpride	Acrylic Solid Hide Stain	7900	2
Kelly-Moore	Acry-Shield	Exterior Flat Acrylic Finish	1240	2
Kwal-Howells CGI	Woodkraft	100% Acrylic Solid Color Stain	6200	2
Northern Paint	Timberlox	Acrylic Latex Solid Stain	55 Line*	2
Porter Paints	Wood Guardian	Solid Color Stain - Acrylic	1919	2
PPG	REZ	Exterior Solid-Color Latex Stain	77-445	2
Sherwin Williams	ProMar	Solid Color Acrylic Stain	A16 Series	2
Spectra-Tone CGI	Gold Label Premium	Ext. Solid Covering Acrylic Stain	71	2
Tower Paint		Exterior Solid Colour Latex Stain	379200	3
Vista Paint		Acribond	3000	3

Low VOC Coatings Meeting Defense Department Policies, Aberdeen Proving Ground

The overall environmental movement in the area of coatings specifications and applications continues to grow. Efforts by the federal government to purchase environmentally friendly products has been mandated by Executive Order 13101, Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition. Under this order, the U.S. Environmental Protection Agency (USEPA) has established guidance to identify services and products purchased by federal agencies. Based on the Executive Order and Department of Defense policies, the U.S. Army's Aberdeen Proving Ground (APG) in Hartford County, Maryland, has established various strategies aimed at preventing pollution. One of the areas for reduction of pollution is the use of interior and exterior and anticorrosive architectural coatings. Working in conjunction with Green Seal, an independent, nonprofit environmental product certification and consumer education organization, APG compiled a list of coatings that identify the environmental requirements for their paint purchases. They limited the study to coating categories that are used most often at APG and evaluated them based on standards in place for heavy metal, toxics and VOC levels. The study was based on over 2,200 coatings in the existing inventory at APG. The following tables list examples of the coatings that meet APG standards. The coatings that are highlighted meet interim, and in some cases final proposed limits for each category.

Interior Flat — APG Standard Voc Limit = 50 g/L*

Manufacturer	Product Name	VOC level g/L
Benjamin Moore	Pristine Flat	12
Benjamin Moore	Moore's Ceiling White Flat	51
Coronado	Super Kote 1000 Vinyl Latex Flat	50
Duron	Texture Paint Flat	49
Duron	Builder's Masterpiece Interior Vinyl Latex Flat	47
Dutch Boy	Fashion Fresh Interior Latex Flat 28	28
Kurfee's Coatings-Servistar	Supreme Interior Odor Free latex Primer-Sealer	47
PPG Industries	8 Year Interior Wall Deep Base	20
Sherwin Williams	Style Perfect Flat	51
United Coatings	Interior Latex Texture Paint Sand Texture	5

*Rule 1113's final VOC limit, effective 7/1/2008, is 50 g/l. All coatings in this category meet the final AQMD limit.

Exterior Flat — APG Standard Voc Limit = 100g/L*

Manufacturer	Product Name	VOC level g/L
Benjamin Moore	Moore's latex Exterior	44
Benjamin Moore	Moorecraft Super Special Premium Latex Exterior Flat	54
Benjamin Moore	Moorecraft Flat	80
Benjamin Moore	Fresh Start Exterior Primer	92
Benjamin Moore	Moorecraft Super Special Premium Latex Exterior House & Trim	67
United Paint Mfg.Co.	Exterior Latex House Paint	18

*Rule 1113's interim VOC limit, effective 7/1/2001, is 100 g/l. The final limit is 50 g/l, effective July 1, 2008.

Interior Semigloss APG Standard Voc Limit = 150 g/L*

Manufacturer	Product Name	VOC level g/L
Benjamin Moore	Pristine Interior Latex Semigloss	13
Benjamin Moore	Pristine Interior Latex Eggshell	57
Benjamin Moore	K&B Acrylic Latex Satin Finish	45
Benjamin Moore	Pristine Egg	16
Benjamin Moore	Pristine Semigloss	20
Benjamin Moore	Regal Satin	68
Benjamin Moore	Moore Kitchen & Bath Satin	81
Benjamin Moore	Moorecraft Super Hide Latex Semigloss Enamel	116
Bruning Paint	Pacon Supreme Latex Semi-Lustre Midtone Base	111
Bruning Paint	Pacon supreme Latex Semi-Lustre Enamel	144
Duron	Plastic Kote Interior Acrylic Semigloss	123
Duron	Pro Kote Interior Acrylic Semigloss	112
Duron	Ultra Deluxe Interior Acrylic Latex Semigloss Enamel	96
Dutch Boy	Fresh Look Interior Latex Semigloss Enamel	119
Glidden Paint	3400 Spread Satin Latex Wall Paint	107
Lasting Paints	Acrylic Tint Base Eggshell	105
Lasting Paints	Acrylic Latex Pastal Base Eggshell Base	120
Lasting Paints	Latex Semigloss Pastel Base	62
PPG Industries	Lucite Interior Latex Semigloss Natural	81
Sears	Easy Living Semigloss Wall & Trim	111
Sherwin Williams	Super Paint Interior Semigloss	142
Sherwin Williams	ProMar Semigloss	81
Sherwin Williams	Classic 99 Interior Semigloss	35
Sherwin Williams	ProMar 700 Semigloss	81
Sherwin Williams	Style Perfect Semigloss	76
Sherwin Williams	ProMar 200 Semigloss	86
Sherwin Williams	ProMar 400 Semigloss	99
Sherwin Williams	Style Perfect	125
Sherwin Williams	ProMar 200 Interior Latex Semigloss	44
Sherwin Williams	ProMar 400 Interior Latex Semigloss	97
Sherwin Williams	Style Perfect Interior Latex Semigloss	120
Sherwin Williams	Style Interior Satin	90
Sherwin Williams	ProMar 200 Interior latex Egg-Shell	137
Sherwin Williams	Classic 99 Interior Satin Latex	144

*Rule 1113's interim VOC limit, effective 1/1/2003, is 150 g/l. The final limit is 50 g/l, effective 7/1/2006.

Interior Gloss APG Standard Voc Limit = 150 g/L

Manufacturer	Product Name	VOC level g/L
Duron	Deluxe Gloss	117

Exterior Semigloss APG Standard Voc Limit = 200g/L*

Manufacturer	Product Name	VOC level g/L
Benjamin Moore	Moorecraft Satin	111
Benjamin Moore	More Exterior Floor and Patio	176
Benjamin Moore	Mooreglo House & Trim Exterior Non-Flat	191
Coronado	Super Kote 3000 Latex Semigloss 74	88
Coronado	Acrylic House Paint 12 Semigloss	169
Duron	Weathershield Semigloss	203
Duron	Weathershield Exterior 100% Acrylic Latex Satin	119
Duron	Ultra Deluxe Exterior 100% Acrylic Latex Semigloss	139
Duron	Weathershield Exterior Acrylic Semigloss	145
Sherwin Williams	Super Paint Exterior Satin Latex	104
Sherwin Williams	Super Paint Latex Satin	129
Sherwin Williams	A-100 Exterior Satin	158
Sherwin Williams	Exterior Satin Latex	52
Sherwin Williams	Weather Perfect Exterior Satin Latex	82
United Coatings	Wal-Mart 15 Year Semigloss Accent Base	150

*Rule 1113's interim VOC limit, effective 1/1/2003, is 150 g/l. The final limit is 50 g/l, effective 7/1/2006.

Exterior Gloss APG Standard Voc Limit = 200g/L*

Manufacturer	Product Name	VOC level g/L
Dutch Boy	Performer Exterior Latex Gloss	96
Sherwin Williams	Super Paint Exterior Gloss Latex	80
Sherwin Williams	A-100 Gloss	107
Sherwin Williams	A-100 Exterior Gloss Latex	64
United Coatings	Wal-Mart Accent Base Exterior Gloss House & Trim	81

*Rule 1113's interim VOC limit, effective 1/1/2003, is 150 g/l. The final limit is 50 g/l, effective 7/1/2006.

Anticorrosive APG Standard Voc Limit = 250g/L*

Manufacturer	Product Name	VOC level g/L
Sherwin Williams	Krylon- Rough Tough Latex- 1	217
Sherwin Williams	Krylon- Rough Tough Latex- 2	217

*Rule 1113's interim VOC limit, effective 1/1/2004, is 250 g/l.

Essential Public Service Coating Committee & Technology Assessments

Following the May 14, 1999 amendments to Rule 1113, the Board directed staff to provide technical oversight and contribute funding to the Essential Public Service Agency (EPSA) technology assessment. District staff formed a committee in September 1999 comprised of representatives from Metropolitan Water District (MWD), Department of Water Resources, Cal Trans and the Department of Water and Power to conduct a technology assessment for the

EPSA's. The Essential Public Service Coating Committee has been very active since 1999, primarily selecting coatings to be included in the technology assessment, as well as devising a testing protocol to fully evaluate the coating and performance characteristics based on service environments. The Essential Public Service Coating Committee devised a three-phase testing program to evaluate approximately 100 industrial maintenance coating systems over a three-year period. The coating types selected for the assessment included zinc primers, coal tar enamel repair, atmospheric exposure, chemical containment, immersion, traffic, roofing, and other miscellaneous coatings. The initial screening process was initiated in early 2001, with a three year test program to validate performance. Over 90% of the coatings in the second phase are already undergoing environmental testing, and staff plans to present the results of this study to the industry and the Governing Board upon completion.

IV. SURVEYS AND SITE EVALUATIONS

In May 2001, District staff conducted surveys at various paint distribution centers. More than 34 wholesale and retail outlets were visited to determine availability of compliant coatings. Results of those surveys indicate that most coatings offered for sale have lower VOCs than the limits proposed for July 1, 2002 as originally adopted in the May 1999 amendments. The current proposals will have these limits effective January 1, 2003. Exceptions in all cases were noted due to specific rule exemptions allowing manufacturers to sell otherwise non-compliant coatings in small containers or in specific categories as long as they report to the District quantities sold annually.

Additionally, District staff continues to conduct surveys of construction sites and facilities that indicate the specification, sale and application of coatings meet and exceed the July 1, 2002 limits adopted in the May 14, 1999 rule amendments. One such example includes a large amusement park and open mall area in Orange County where coatings that complied with 2006 limits were applied in 2000, prior to their opening in early 2001, and continue to exhibit good performance characteristics.

Coating specifications for the amusement park and open mall area called for the application of ultra-low and zero-VOC architectural coatings without compromising costs and overall performance on the projects. The combined efforts of many companies and suppliers working with project coating specifiers led to this achievement in architectural coating technology advancement. The extensive documentation provided to AQMD staff is further evidence of the availability and performance of compliant coatings for future limits in Rule 1113 - Architectural Coatings. This is particularly true with respect to the various types of substrates including wood, metal, and concrete, and applications where ultra-low VOC and zero-VOC technologies are being used. Quality and performance were the driving forces behind coating choice decisions and they showed that the ultra-low and zero-VOC were the best available products for meeting these needs. They also showed how all this could be accomplished at a reduced cost including turnover and other labor costs when compared to higher-VOC coating systems.

The following table shows the coatings applied that meet future rule requirements well in advance of compliance deadlines. During construction, VOC emissions reduced in excess of the rule requirements were estimated at over 10 tons/year.

Amusement Park
Low and Zero-VOC Applications

Projects	Coating Type	VOC of Coatings (g/l)	Current VOC limit (g/l)	Proposed VOC limit 2003 (g/l)	Proposed VOC limit 2004 (g/l)	Proposed VOC limit 2006 (g/l)
Flooring	WB Polyurethane Epoxy	<50 0	420 420	100 100		50 50
Steel Tanks & Rails	WB Inorganic Zinc Primer Acrylic Primers	0 <200	420 420		340 250	100 100
Chlorine Contact Coatings	WB Acrylic Polymer Epoxy	<250 <250	420 420		250 250	100 100
Attraction 1	WB Sealer	<100	350	200		100
Building Facades (Base & Theme Painting)	WB Acrylic Primer on wood	<100	350	200		100
	Acrylic Primer	<250	350	200		100
	Acrylic Semi-gloss Finishes Acrylic Latex Flat Finishes	< 150 .<100	250 100	150		50 50
Attraction 2	Sealer applied to plaster & stucco	0	400			
Attraction 3	Sealer applied to cement – plaster	0	400			

The amusement park project involved over 200 contracted base painters, 75 theme painters in addition to numerous staff, coating contractors, and consultants. More than half of the exterior surface area received less than 100 grams of VOC per liter architectural coatings. The significance is that, in most cases, they were able to use existing technology that meet performance requirements for durability, abrasion resistance, adhesion, and color retention without compromising cost or quality. They met Rule 1113 - Architectural Coating final compliance deadlines at least six to eight years or more ahead of schedule.

Other site visits include Universal Studios where they continue to use low- and zero-VOC coatings in facility maintenance, as well as motion picture and television production sets on substrates, including metallic rod iron and chemical containment berms. The following table lists just a few of the various coatings that meet the current and future rule limits that are in daily use by the Universal Studios Paint Department, and that meet current and future limits of Rule 1113.

Universal Studios Paint Department
Low and Zero-VOC Applications

Coating Category	Coating Type	VOC of Coatings (g/l)	Current VOC limit (g/l)	Proposed VOC limit 2003 (g/l)	Proposed VOC limit 2004 (g/l)	Proposed VOC limit 2006 (g/l)
Floor	WB Acrylic Floor Enamels	75 to 145	420	100		50
Industrial Maint. Coatings	WB Acrylic Enamels	204 to 228	420		250	100
Flat Coatings	Interior and Exterior WB Acrylics	65 to 91	100			
Primers, Sealers, Undercoaters	Stain Blocking Primers Acrylic Masonry Primer/Sealers	96 to 125	350	200		100
Stains	Exterior WB Acrylic	138	350	250		
Waterproofing Sealers	WB Acrylics	0 to 99	400	250		
Metallic Pigmented	Acrylic	120	500			

Current Compliance Program

Many of the construction sites visited during the survey process were in various stages of completion ranging from warehouses and restaurants to schools and office buildings. The coatings specified and applied at these sites included flats, nonflats, floor, primers, sealers, undercoaters, waterproofing concrete/masonry sealers, traffic and sanding sealers to name a few. The vast majority of the coatings meet the proposed January 1, 2003 limits and many were compliant with future limits to be implemented in July 2006. Examples of specifications and applications found at those sites include, flats at 39 g/l of VOC, nonflats at 79 g/l VOC, floor at 0 g/l VOC, primers at 57 g/l VOC, sealers at 70 g/l VOC, traffic at 72 g/l VOC, and sanding sealers at 80 g/l VOC. The trend to specify and apply environmentally friendly coatings has increased significantly over the years, giving further proof that new coating technologies exist that have proven performance characteristics amenable to the construction industry. These coatings would not be specified if they did not meet the performance requirements necessary for new or renovation construction activities.

In 1998, the CARB Architectural Coatings Survey examined sales data of architectural coatings from over 150 manufacturers that demonstrated coatings are available that meet current and future Rule 1113 requirements. The survey focused on 58 architectural coating categories, including non-flats, floor coatings, primers, sealers and undercoaters and stains. The complete study can be found on CARBs website at http://www.arb.ca.gov/coatings/arch/survey/results/freport.pdf.

CARB has continued its efforts and has recently completed another comprehensive survey based on architectural coatings sold in California during the year 2000. Preliminary Draft information has been made available to the public by CARB, and a Draft is anticipated to be released by the end of 2002.

C H A P T E R IV

MAY 14, 1999 AMENDMENT – FINAL STAFF REPORT

CHAPTER IV 1999 FINAL STAFF REPORT

A copy of the May 14, 1999 Staff Report may be obtained from the AQMD website at:

aqmd.gov
Rules and CEQA
Rule 1113 – 1999 Board Package and Attachments

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A P P E N D I X A

COMMENT LETTERS RECEIVED AND RESPONSES TO COMMENTS

The District has received 20 letters via fax, e-mail, Fed-Ex and regular mail. Letters numbered 1 through 4 and 18 were CEQA related and are included in the Subsequent Environmental Assessment prepared for this rule amendment. Letters and responses for letters numbered 5 through 17, 19 and 20 are included in this Appendix.

Benjamin Moore & Co. *Paints • Stains • Clear Finishes*
TECHNICAL & ADMINISTRATIVE CENTER • 360 ROUTE 206 • P O BOX 4000 • FLANDERS, NEW JERSEY 07836-4000 • (201) 927-8600 • FAX: (201) 252-2660

August 21, 2002

Dan Russell – 909 396-2333
Planning, Rule Development and Area Sources
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765

Dear Mr. Russell:

5-1 Benjamin Moore & Co. has been a participant in the National Reg/Neg which resulted in the National AIM VOC Rule and in the various work groups which commented on most stages of the current SCAQMD Rule 1113. Though out this process we have supported all proposals and recommendations of the National Paint and Coatings Association (NPCA) and we continue to do so.

5-2 However, in addition, we have requested SC to adopt the National Definition for Shellac – "means a clear or pigmented coating formulated with natural resins (except nitrocellulose resins) soluble in alcohol (including, but not limited to, the resinous secretions of the lac beetle, Laciffer lacca). Shellacs dry by evaporation without chemical reaction and provide a quick-drying, solid protective film that may be used for blocking stains." By this letter we once again request this change to the current and proposed Rule 1113.

SC implicitly recognizes the need for this product by its inclusion in the Rule and the need for a special VOC limit with a line item in the TOS. We continue to feel the SC definition is unduly restrictive and limits the citizens of SCAQMD to a much more costly product without delivering any additional benefits. This product is very specialized and limited in its uses. Broadening the definition as requested will only lead to more product choices and lower costs for the consumer, not increase VOC emissions.

Sincerely,

BAJenkin

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Established 1883

The Sherwin-Williams Company
Environmental, Health & Regulatory Services
101 Prospect Avenue, N.W.
Cleveland, Ohio 44115-1075
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FEDERAL EXPRESS NO.________________

August 28, 2002

Ms. Lee Lockie
Director, Area Sources
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

Dear Ms. Lockie,

The Sherwin-Williams Company is pleased to have this opportunity to comment on the Preliminary Draft Staff Report dated 8/6/02, on the Draft Proposed Amendments to Rule 1113, Architectural Coatings dated 8/1/02 subheaded PAR – 1113B November 1, 2002, and the Draft Subsequent Environmental Assessment for Proposed Rule 1113 – Architectural Coatings.

6-1 The Sherwin-Williams Company is one of the largest coating manufacturers in the world, with 2001 annual sales of over five billion dollars. We maintain manufacturing facilities throughout the country, including several within the State of California. We maintain company-owned and operated Stores throughout the country, including several within the District. These are the exclusive distributors / retailers for the Sherwin-Williams brand. In addition to this distribution, our products, under a variety of additional brand names, are distributed through mass merchandisers, do-it-yourself outlets, hardware stores, and by independent distributors. Our product lines include some of the most recognized brand names, including – but not limited to – Minwax®, Thompsons®, Pratt & Lambert®, Martin-Senour®, Dutch Boy®, Rust Tough®, Cuprinol®, and H&C®. In the architectural and industrial maintenance product areas these coatings are used for their decorative and protective properties.

We include by reference all comments submitted to the District or presented by The Sherwin-Williams Company during the rule development process associated with the May 14, 1999 rule amendments, with special reference to the following:

1. Our April 15, 1999 written comments to Mr. Naveen Berry (see especially our discussion on Limits and Categories)
2. Our April 23, 1999 and May 4, 1999 written comments to Mr. Jack Broadbent.

6-2 As discussed at the Public Hearing on the Proposed Amendments to Rule 1113, Architectural Coating, there are a number of issues with this proposal. Our discussion will be divided into three sections:

1. SECOND TIER LIMITS
2. SIGNIFICANT ISSUES
   - A- Provisions, Definitions, and Limits
   - B- Other Issues Impacting Compliance
3. ISSUES WITH THE DRAFT SEA

6-3

SECOND TIER LIMITS

There is no question that the second tier limits will restrict the availability of coatings within the District to a very narrow selection which do not meet all of the performance requirements needed by customers. This was brought out in the previous rule adoption proceedings with sufficient clarity for the Appeals Court to state: "Generally speaking, low volatile organic compound paints and coatings don't last as long as their higher volatile organic counterparts,[2] and may be unsuitable for such heavy-duty uses as, say, electrical transformers and water pipelines."

[2] There really isn't any dispute on this general point, though the district points to some studies showing that some higher level volatile organic compound paints and coatings don't "perform" as well as some lower level ones. In that regard, one of the many issues we do not address is whether the district acted capriciously in adopting a rule that reduced volatile organic compound levels even for paints and coatings intended for extremely heavy-duty uses where there is a serious question as to whether there are now *any* low volatile organic paints available as substitutes.

There are not adequate replacements to match the current performance for any of the categories with VOC reductions scheduled for 2006 and 2008, including industrial maintenance coatings, primers, sealers, undercoaters, chemical storage tank coatings, essential public service coatings, floor coatings, flat coatings, nonflat coatings, quick dry primers, sealers, and undercoaters, rust preventative coatings, nor specialty primers.

6-4

While there are a very few exterior latex flat and nonflat coatings at 0-50 g/l, these are the exception rather than common. To require this level will result in multitudes of product problems and limitations, including lack of color durability and restricted color availability. In addition, the products will tend to last for shorter periods of time and require more frequent repainting. It is important to remember that in latex coatings the VOC's are introduced to achieve specific performance characteristics. Without these VOCs, those performance characteristics are missing. Since these VOCs add to raw material costs (in contrast to the water for which the solvent is substituted), they are added at the lowest level compatible with the performance requirements. Specifically, the VOC additives are coalescents and glycols. The coalescents are added to help coalesce the latex film Without it, a softer resin would need to be used. Softer resins have problems with dirt pickup and block resistance, as well as decreased durability. The glycols are used to provide both freeze/thaw stability and improved application properties (flow, leveling, open time). Decreasing or eliminating the glycols results in decreasing these performance parameters; eliminating the glycols results in significantly reduced performance, as well as opening the possibility to freeze thaw spoilage. [Although the temperatures in the District are not usually below freezing, all Sherwin-Williams manufactured architectural coatings are distributed into the District from other locations (primarily, Sparks, Nevada) where freezing temperatures are common.

6-5

While the Averaging option provides needed flexibility for the 2003 limits, it will be inadequate to compensate for the large numbers of products which will not be available in 2006. We believe additional categories will be needed to meet the specific performance properties required and to minimize the VOC contents of each mini-category. For example, the industrial maintenance category might be divided into the following categories having separate limits: coatings for highway and bridges; chemical plants; paper and pulp mill,; masonry structures; immersion service; food and beverage facilities; petrochemcials; etc. The nonflat category might be divided between interior and exterior and different gloss levels. Such divisions would allow the maximum VOC reduction while maintaining some of the needed performance characteristics.

6-6 We recommend the second tier limits be deleted from the rule and considered at a later time when more information is available. The only alternative is, if these second tier limits are to be adopted at this time, we strongly recommend revisiting these limits with a rule amendment in 2004.

SIGNIFICANT ISSUES

We are especially concerned with the following issues:

1. Sell-through provision
2. Waterproofing sealer definition
3. Zinc rich coatings for field applications
4. Waterborne floor coatings
5. Specialty primer definition
6. Most Restrictive Limit Requirement
7. Sealer definition
8. Waterborne low solids stains not meeting the definition of "low solids coating"

Most of these are technical changes which will not result in increased emissions, because the assumptions made in developing the rule were as we will be describing.

<u>1. Sell Through Provision</u>

Section (c)(4) states,

> "Except where already required to be in compliance with the previous version of this rule, sale or application of a coating manufactured prior to the effective date of the corresponding standard in the Table of Standards, and not complying with that standard, shall not constitute a violation of paragraph (c)(2) until three years after the effective date of the standard."

6-7 Please note that contrary to all discussions occurring during the rule development, as written this provision will result in all products introduced into South Coast under the averaging provision being out of compliance unless they continue to be included in the plan, even though no new shipments may be introduced. Since we are accounting for products in the plan when they are introduced into the district, this makes no sense.

CARB agreed with our concerns and has been recommending to the Districts that they revise the language to account of this issue.

Another issue concerns the interpretation of the Sell Through Provision as it relates to Quick Dry Primers, Sealers, and Undercoaters. On April 24, 2002 Mr. David DeBoer interpreted the sell through provision for this category by responding to a question from UGL concerning how the sell-through provision applies by stating:

"What this means is, if the Quick Dry Primer product you described has a manufacture date prior to July 1, 2002 then that product may be sold or applied up to three years after 7/1/02 without being in violation of the rule (**assuming it is not over the previous rule limit of 350 g/l**)."

This indicates that products which were legally introduced into the District under the Exemption (shipped into retail stores) would not be granted a Sell-Through. The Sell-Through provision was always envisioned to include the sell-through of all products which were legally introduced into the District.

For this reason, we recommend Section (c)(4) be revised to state:

> "Except where ~~already required to be in compliance with~~ in violation of the previous version of this rule, sale or application of a coating manufactured prior to the effective date of the corresponding standard in the Table of Standards, and not complying with that standard, shall not constitute a violation of paragraph (c)(2) until three years after the effective date of the standard. <u>A coating included in an approved Averaging Program that does not comply with the specified limit in the Table of Standards may be sold, supplied, or offered for sale for up to three years after the end of the compliance period specified in said approved Averaging Program. In addition, such a coating may be applied at any time, both during and after the compliance period.</u>"

2. Waterproofing Sealer Definition

Rule 1113 does not include a generalized waterproofing sealer category. There are only 2 possibilities as currently adopted: to be a film forming waterproofing sealer for concrete and masonry with resistance to water, as well as having additional resistance properties (resistant against alkalis, acids, ultraviolet light, and staining) or to be a colorless waterproofing sealer for wood substrates. However, there are many penetrating waterproofing sealers that do not fit either of these two categories; they may be used for multiple substrates, or be a colored waterproofing sealer for wood, or may be used on masonry and concrete but not meet the other requirements, or on cement, or brick, etc. None of these
6-8 alternate use patterns would be not allowed to be categorized as waterproofing sealers.

CARB agreed with our concerns and included in the SCM a general waterproofing sealer category (instead of the wood waterproofing sealer category) defining it as follows:

> "Waterproofing Sealer: A coating labeled and formulated for application to a porous substrate for the primary purpose of preventing the penetration of water."

In the SCM, the limit of such general waterproofing sealers is 250 g/l. Please also note that these coatings would not meet the definition of sealer, since that definition requires the coating to be topcoated, and frequently these coatings are not topcoated.

3. Zinc Rich Coatings

The proposal eliminates zinc metallic pigmented coatings from the definition of metallic pigmented coatings. This is a significant departure from the current rule and from all other VOC content regulations in the country. This is especially important since this would eliminate almost all of the inorganic and organic zinc rich coatings available. It is noteworthy that the waterborne inorganic zinc rich coatings which would meet the 250 g/l limit face significant application problems. In fact, there are a number of lawsuits pending because these application problems are so challenging. The difficulty is that in order to be successful, the metal substrate must be sand blasted with absolutely NO contamination. If a worker touches the surface, that contact point will cause a fault and will result in failure. While this may pose less of a problem in controlled environments like shop applications, it is an insurmountable barrier for in-field applications. Additional problems with such waterborne systems include the fact that they can not be applied at lower temperatures.

6-9

We recommend a new category, Metallic Zinc Pigmented Coatings, be defined as

> "Metallic Zinc Pigmented Coatings are coatings which contain a minimum of 74% by weight on the weight solids of zinc metal."

We recommend a limit of 340 g/l.

4. Waterborne Floor Coatings

While some floor coatings can meet the 100 g/l limit, most do not. There is only one single component floor coating included in Appendix D of the Draft Subsequent Environmental Assessment. The remarkable thing about the coatings which do not meet the 100 g/l limit but that do meet the 250 g/l limit included in the CARB SCM and in other District rules is that they are, for the most part, waterborne systems with actual emissions (the VOC content on a material basis) of less than 100 g/l. The VOC contents of representative waterborne floor coatings available from Sherwin-Williams are shown below:

$VOC_{content}$	$VOC_{material}$
163	54
156	54
155	54
167	55
162	85
164	86
165	84
175	92
161	85
175	90
181	96
161	85
168	83

6-10

For this reason we believe that introducing a waterborne floor coating category could effectively expand the number of useful coatings available without impacting VOC emissions.

We recommend the following definition:

"Waterborne floor coatings are floor coatings with water content at a level of at least 50% of the volatile content."

We recommend a limit of 250 g/l for waterborne floor coatings.

5. Specialty Primer Definition and Limit

As discussed extensively during the rule development leading up to the May 14,1999 rule amendment, Sherwin-Williams recommends the use of an alkyd (solvent borne) primer on bare exterior wood prior to application of all of the Sherwin-Williams exterior latex topcoats. This procedure provides an appropriate substrate for the latex topcoat to achieve maximum durability and performance. While we recommend that the specialty primer category be expanded to include "primers for application to bare exterior wood," we consider it at an absolute minimum to expand the specialty primer category to include "primers to block stains."

The South Coast Rule 1113 definition does not take into account the data from the NTS study, which clearly showed that stain blocking properties were absent from ALL of the waterborne primers tested at any VOC; and that stain blocking properties were present in ALL of the solvent borne primers tested. This data was one of the reasons CARB included stain blocking as a condition qualifying a primer for the specialty primer definition and limit. While the KTA-Tator study did not show identical results, the test methods used were different and the number of primers tested by KTA-Tator was far less than the large number of primers tested in the NTS study.

6-11

It is also noteworthy that during the May 14, 1999 rule adoption hearing the Governing Board specifically addressed this issue by asking if my concerns would be addressed in this category. In response, staff answered in the affirmative that the specialty primers would include stain blocking. Staff should honor that statement and expand the definition.

Here are the pertinent definitions:
CARB's SCM: "**Specialty Primer, Sealer, and Undercoater:** A coating labeled as specified in subsection 4.1.7 and that is formulated for application to a substrate to seal fire, smoke or water damage; to condition excessively chalky surfaces, or to block stains. An excessively chalky surface is one that is defined as having a chalk rating of four or less as determined by ASTM Designation D 4214-98, incorporated by reference in subsection 6.5.7."

Rule 1113: " (46) **SPECIALTY PRIMERS** is a coating formulated and recommended for application to a substrate to seal fire, smoke or water damage; or to condition excessively chalky surfaces. An excessively chalky surface is one that is defined as having chalk rating of four or less as determined by ASTM D-4214 – Photographic Reference Standard No. 1 or the Federation of Societies for Coatings Technology "Pictorial Standards for Coatings Defects"."

Please note that the Rule 1113 definition is gramatically incorrect using a plural subject and a singular verb. ["primers is" versus the correct "primers are" or "primer is"]

6. <u>Most Restrictive Limit Requirement</u>

Section (c)(3) requires that the when more than one category can be interpreted from the label or other literature, the most restrictive limit must apply and provides a short list of 4 exceptions to this requirement. In contrast, the CAQRB SCM provides a list of 15 exceptions, each of which is needed to be included in Rule 1113.

The following provides a brief explanation of the needed exceptions and the relevant areas of overlap that results in this need:

1. Lacquer coatings (including lacquer sanding sealers). This is a chemically based definition, while most definitions are performance or application based. Thus, all lacquers will also meet another definition: they may be sealers, nonflats, etc. but they ARE "something" and will also meet the definition for that "something".

2. Metallic pigmented coatings. These can also be industrial maintenance coatings or nonflats,
3. Shellacs. This is a chemically based definition, while most definitions are performance or application based. Thus, all shellacs will also meet another definition: they may be sealers, nonflats, etc. but they ARE "something" and will also meet the definition for that "something".
4. Fire-retardant coatings. These will meet the definitions for the lower VOC categories of flats, nonflats, primers, etc.
5. Pretreatment wash primers. These are usually sold as Industrial Maintenance coatings and will meet the definition for that category.
6. Industrial maintenance coatings. These are either nonflat, flat, primers, undercoaters, etc. and will meet these definitions.
7. Low-solids coatings. This is a chemically based definition, while most definitions are performance or application based. Thus, all low solids coatings will also meet another definition: they may be sealers, stains, wood preservatives, etc. but they ARE "something" and will also meet the definition for that "something".
6-12 8. Wood preservatives. These are frequently also stains. For example, our most popular wood preservatives are called "Stain & Wood Preservative." The word "stain" indicates that it will also stain the wood. This does not mean that stains are wood preservatives. Rather, wood preservatives may be stains as well. However, all preservatives must meet the requirement that they be registered with California Environmental Protection Agency.
9. High temperature coatings. These are also industrial maintenance coatings and could be primers as well.
10. Temperature-indicator safety coatings. These are also industrial maintenance coatings.
11. Antenna coatings. These are also industrial maintenance coatings.
12. Bituminous roof primers. These are also primers and roof coatings.
13. Specialty primers, sealers, and undercoaters. These will also meet the definition for primers, sealers, and undercoaters.

Each of these cases show that unless the list of overlap exemptions is expanded, technically companies offering products with these categories at the category limits will be in violation of the rule requiring the lowest limit apply.

For this reason we recommend the list of overlap exemptions be expanded.

7. Sealer Definition

Rule 1113 defines a sealer in the following:

> "(42) SEALERS are coatings applied to substrates to prevent subsequent coatings from being absorbed by the substrate, or to prevent harm to subsequent coatings by materials in the substrate."

6-13

This definition assumes that all sealers will be topcoated. This is not always the case. In fact, in my own home, we sealed the new concrete basement floor with a sealer simply to reduce the amount of concrete dust that would be released. We did not topcoat this sealer.

In addition to such a use, sealers are commonly used to protect the substrate from contaminants and harm. Labels for examples of several such products are available on request.

We recommend the definition be amended to include such uses, changing the definition to the following:

"(42) SEALERS are coatings applied to substrates to prevent subsequent coatings from being absorbed by the substrate, to prevent harm to the substrate from contaminants, to protect the substrate, to prevent the degradation of the substrate (such as, to prevent concrete dust from forming by securing the substrate) or to prevent harm to subsequent coatings by materials in the substrate."

Other Issues Impacting Compliance

Labeling rust preventative coatings – There is some confusion on the correct labeling for products that could be used in either industrial maintenance or residential situations. The labeling of industrial maintenance coatings would seem to preclude such use, even when the coating is below the 250 g/l
6-14 rust preventative requirement if the IM label indicated any other substrate (even if the product was named Rust Tough, etc.). And the Rust preventative labeling requirement seems to restrict the use from IM facilities, even if the product VOC is less than the IM 250 g/l. This needs to be clarified so a single product can be labeled appropriately for more than one use when appropriate and compliant with the multiple uses.

Ceiling Limit for Averaging of Quick Dry Primers, Sealers, and Undercoaters – Companies which have been taking advantage of the quick dry primer, sealer, and undercoater exemption by filing annual reports should be allowed to take that exemption into the ceiling limit for such products. The
6-15 original idea for ceiling limits was to prevent the introduction of new, higher VOC coatings into the District. However, in the situation where a company has been taking advantage of the exemption, new higher VOC coatings would not be introduced by allowing that exemption to continue to form that companies ceiling limits. Specifically, since Sherwin-Williams has been selling quick dry primers with VOC contents of 550 g/l under the exemption, we request a ceiling limit for our quick dry primers to be 550 g/l.

Expand Averaging Categories for Second Tier Limits – There are a number of categories which
6-16 have new low limits come into effect in the second tier, but which are not currently included in the averaging program. These categories should be included.

ISSUES WITH THE DRAFT SUBSEQUENT ENVIRONMENTAL ASSESSMENT

As discussed during the Public Workshop, staff continues to misrepresent the VOC content of Sherwin-Williams' products.

The following products are listed in the Draft Subsequent Environmental Assessment with significantly incorrect VOC contents:

6-17

Product	VOC Draft SEA	VOC Data Page 2002
Sherwin Williams Zinc Clad™ VI (B69)	48 g/l	163 g/l
Sherwin Williams ProClassic ® Waterborne Acrylic Semi-Gloss	70	157
Sherwin Williams ProClassic ® Waterborne Acrylic Gloss (B-21)	70	156
Sherwin Williams ProMar ® 200 Interior Latex Gloss Enamel	90	193
Sherwin Williams SuperPaint ®		

Exterior High Gloss Latex Enamel (A85)	57	119
Sherwin Williams EverClean ® Interior Satin (A97)	81	187
Sherwin Williams ProMar ® 400 Interior Latex Egg-Shel Enamel B20W400	121	133
Sherwin Williams LowTemp 35 ® Exterior Satin House Paint (B17)	40	102
Sherwin Williams A-100 ® Line – Satin (A82 – White)	38	112
Sherwin Williams A-100 ® Line – Gloss (A8 - White)	49	134
Sherwin Williams Water Based Catalyzed Epoxy (B70-200)	176	209
Sherwin Williams Loxon ® Exterior Acrylic Masonry Primer (A24)	60	130
Sherwin Williams PrepRite ® 200	26	86
Sherwin Williams PrepRite ® 400	19	61
Sherwin Williams PrepRite ® ProBlock ® Interior Latex Primer/Sealer	40	99
Sherwin Williams Cuprinol Clear Deck	27	282

In addition, the following Sherwin-Williams products are misrepresented in terms of their uses:

1. Sherwin Williams Armorseal ® 650 SL/RC (2 component) – classified in Appendix D as both a floor coating and as an industrial maintenance coating. It is true that this product is used in industrial sites -- however, it is a floor coating; it is not for general industrial maintenance use.
2. Sherwin Williams Tower-Guard ® HS (B54AZ600) – this product was developed specifically for transmission towers. Again, it is not for general industrial maintenance use.
3. Sherwin Williams Healthspec ® Low Odor Interior -- discontinued. See HARMONY® INTERIOR LATEX product lines.
4. Sherwin Williams Water Based Catalyzed Epoxy (B70-200) – listed in both Table D-5 (Industrial Maintenance) and in Table D-13 as a Primer, Sealer, Undercoater. However, this is a multicomponent epoxy for industrial maintenance use. It is NOT a general purpose primer and it is NOT appropriate for general consumers.
5. Sherwin Williams Zinc Clad ® VI (B69) – listed in both Table D-6 (Industrial Maintenance) and in Table D-14 as a Primer, Sealer, Undercoater. This is a multicomponent zinc rich coating. It is NOT appropriate for general consumers. It is NOT a general purpose primer.
6. Sherwin Williams UHS Primer – is listed in both Table D-6 (Industrial Maintenance) and in Table D-14 as a Primer, Sealer, Undercoater. It is no longer a current product.

Additional products show inadequacies:
Floor Coatings: Table D-24 -- Of the 6 new products listed, only one is NOT a multicomponent coating. That product, Curecrete Ashford Formula provides none of the standard coating information, like solids, gloss, adhesion. For durability the only property listed is "32.5 % improvement in 30

minutes" – it is unlikely that this means that the coating will improve the durability of the substrate by 32+% in 30 minutes. This claim needs to be explained.

Industrial Maintenance Coatings: Table D-26 -- at the end of the table, there are 4 symbols shown as representing four ASTM test methods. However, we do not find where these symbols were previously referenced. Please elaborate.

Nonflats (Low Gloss): Table D-27 – this table claims to have 3 samples with VOC contents between 150 and 250 g/l. However, the third product (Frazee Aro-plate II LS i/e) is listed as having a VOC of 400 g/l.

Nonflats 50 g/l and less: Table D-29 – most if not all of the products listed are for interior use. Do any claim exterior durability.

High Temperature IM Coatings: Table D-32 – it would appear that the only high temperature IM coatings which will be available to meet the 420 g/l limit are from one manufacturer. This seems to be institutionalizing a monopoly.

If you have any questions or need additional information, please feel free to contact me by telephone at (216) 566-2630, by facsimile at (216) 263-8635, or by electronic mail at mkharding@sherwin.com.

Sincerely,

Madelyn K Harding

Madelyn K. Harding, Administrator
Product Compliance & Registrations

Attachments: Product Data Sheets *

C:\WINDOWS\DESKTOP\Rule 1113-2002 adoption\Letter-ISSUES.doc

* Due to the volume of Product Data Sheets submitted with Sherwin-Williams comment letter they have not been incorporated into Appendix C; however, they are available upon request.

ICI Paints

ICI Paints
Strongsville Research Center
16651 Sprague Road
Strongsville, Ohio 44136
Telephone (440) 826-5519

Dan Russell
South Coast Air Quality Management District - SCAQMD
21865 East Copley Drive
Diamond Bar, CA 91765

August 30, 2002

RE: Propose Readoption of Rule 1113 – Architectural Coatings

Dear Mr. Russell:

ICI Paints appreciates this opportunity to provide our comments and opinions on the proposed amendments to the Architectural Coatings Rule 1113.

7-1 You will notice that the theme of our comments is consistency. We believe it is important to have consistent VOC rules throughout California as well as with the U.S. EPA's National Rule. The most populous air districts in California have adopted AIM rules that are consistent with the California Air Resources Board's Suggested Control Measures, CARB SCM. We believe it would be appropriate and mindful to continue this trend as the SCAQMD looks to readopt their architectural coatings rule.

Our comments are itemized below.

DEFINITIONS

7-2 (33) NONFLAT COATINGS are coatings that register a gloss of 5 or greater on an 60 degree meter ~~and~~ OR a gloss of 15 or greater on an 85 degree meter.

Adding the 'or' between the two gloss readings would be consistent with SCAQMD's 'Flat Coatings' definition, the U.S. EPA's National Rule, and other California air district's definition for Non-Flat Coatings.

VOC LIMITS

FLOOR COATINGS

7-3 *The proposed VOC limit for Floor Coatings is 100 g/l. That is a 76% reduction from the original VOC limit of 420 g/l. All other VOC reductions proposed in this rule are around 40%. We believe the Floor Coatings VOC limit should be set at 250 g/l, which is consistent with the air districts that have adopted the CARB SCM.*

INDUSTRIAL MAINTENANCE COATINGS

7-4 *We believe the Industrial Maintenance Coating's VOC limit, as proposed by SCAQMD, should be delayed one year until January 1, 2004. This delay would be consistent with the implementation of a 250 g/l Industrial Maintenance Coating VOC Limit by the air districts that have adopted the CARB SCM.*

Should you have any questions regarding our comments, please contact me at 440-826-5519.

Sincerely,

James Kantola

James R. Kantola
Regulatory and Technical Information Analyst

TNEMEC COMPANY INCORPORATED
123 W. 23RD AVENUE, N. KANSAS CITY, MO 64116-3094 TEL: 816 474-3400 FAX: 816 842-3904

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TNEMEC

August 30, 2002

Mr. Michael Krause c/o CEQA
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765

Re: PAR 1113

Dear Mr. Krause:

8-1 I am writing to you today to provide comments and suggested changes to the proposed amendments to Rule 1113: Architectural Coatings. Tnemec recognizes the importance of reducing the emissions of VOCs for reduction of air pollution in southern California. It is our desire to work with the staff to develop a rule with reasonable VOC limits based on technically feasible and field-proven technology. Tnemec has worked very hard over the last few years to assess the impact of the proposed Rule 1113 on our business and develop new products that will meet the requirements. It is important for the staff to recognize that the impact of this rule for Tnemec is very far reaching and to date has resulted in the development of several new products that we must continue to try and gain market acceptance and develop the long term test data that is expected for high performance industrial maintenance coatings. We offer the following comments and suggested changes to PAR 1113 to support what we believe are reasonable VOC limits based on proven available technology.

8-2 <u>Zinc-Rich Coatings</u>

The PAR 1113 indicates, "Zinc-Rich Industrial Maintenance Coatings are not considered metallic pigmented coatings." (1). Zinc is an elemental metallic pigment and this statement contradicts the category title of "Metallic Pigmented Coatings". The National AIM rule specifically includes zinc pigment in the metallic pigmented coating category by definition (2). The California Air Resources Board also supports the inclusion of zinc primers in the metallic pigmented category (3). The majority of zinc rich primers in use today are shop-applied products and are not covered by Rule 1113. The amount of zinc rich primer products that are field applied is very small.

8-3 The importance of zinc-rich primers to extend the service life (corrosion protection) of industrial maintenance and new construction coating systems cannot be underestimated. Based on long term actual field exposure studies it has been determined that the sacrificial protection provided by zinc-rich primers will extend the corrosion protection of coating systems for steel between 40 to 50 % when compared to barrier type primer system (4).

Only two organic zinc-rich primers have been certified in accordance with ANSI/NSF Standard 61 for contact with drinking water. Neither meet a 250 g/l max. VOC restriction (5)(6). The use of organic zinc rich primers on the interior of potable water tanks significantly extends the service life and results in lower VOC emissions due to less frequent repainting (7).

-Continued -

8-4 The May 1999 SCAQMD Staff report has very few references to zinc-rich primers other than a mention of a water-based epoxy zinc-rich primer from SW (Zinc Clad VI) with a VOC content of 48 g/l (8). This information contrary to the Sherwin William PDS for Zinc Clad VI which lists the VOC content at 163 g/l (9). There are water-based inorganic zinc-rich primers with less than 50g/l VOC content, but there have been many problems and lawsuits regarding the use of water-based inorganic zinc-rich primers. Dry time and intercoat adhesion problems have been the primary problems with the water-based type inorganic zinc-rich primers.

8-5 There are distinct advantages and disadvantages when comparing organic to inorganic zinc-rich primers (10).

In summary, both organic and inorganic zinc-rich primers extend the service of life of coating systems for steel substrates because of their sacrificial protection properties. Very few organic or inorganic zinc-rich primers are available with VOC content under 250 g/l. The overall performance properties of those that are available should be severely questioned along with other limitations.

8-6 In keeping with the spirit of cooperation with the staff. If you feel strongly about exclusion of zinc-rich primers from the metallic pigmented category, we suggest the creation of a new category specific to zinc- rich primers and offer the following definition for this category: "ZINC-RICH PRIMERS are coatings applied direct to metal substrates and formulated to contain a minimum of seventy four percent metallic zinc powder (zinc dust) by weight of total solids by weight. The resin binder may be inorganic or organic." We suggest that this category have a VOC limit established at 420 g/L however we would not object to the VOC limit of 340 g/L as suggested at the August 21, 2002 public workshop.

8-7 <u>250 g/L VOC Limit for Floor Coatings</u>

Tnemec suggests a 250 g/L limit for floor coatings. This higher limit is needed due to the lack of chemical resistant urethane flooring products that will meet the VOC limitations and have adequate performance properties. Chemical resistant urethane flooring products are used in environments where a tough, hard, chemical and abrasion resistant surface is needed. Its use is prevalent in aircraft hangars and automotive repair facilities where there is constant abuse from corrosive chemicals, such as jet fuel, gasoline, transmission fluid, brake fluid and other automotive and aviation chemicals. In addition to these chemicals the coatings receive a lot of abrasion and impact. The two component polyester urethane is the product of choice for these types of applications.

8-8 The technology is not currently available for two component polyester urethane products that will meet the 100 g/L limit for floor coatings. There is some newer technology available based on polyaspartic chemistry for creating 100% solids two component urethane products. This technology has some serious drawbacks related to performance in these environments. In particular, the chemical resistant is much lower, the UV resistance is lower and there are issues related to the chemical odor of indoor applications of polyaspartic chemistry. These drawbacks are significant enough that the viability of this technology for any type of floor coating has been questioned. Tnemec can provide test data to support these claims if needed.

8-9 The SCAQMD Staff cites the Air Products Adura Polyols line as available technology for use in two component polyurethane flooring (11). The Adura technology has a severe stability limitation. The "Adura polyols are aqueous polyesters which hydrolyze over time" (12). Hydrolysis is a chemical decomposition involving the splitting of a chemical bond and the addition of water (13). This stability problem is physically seen as viscosity increase and a pH decrease. Air Products has indicated a 12 month stability of the resin and only a 6 month stability of a finished product.

- Continued -

8-10 It is imperative that the SCAQMD staff reconsider the VOC limit for the floor coatings category and set the limit at a reasonable level of 250 g/L to allow the use of two component polyester urethane products for floor coating applications. The result of keeping the limit at the 100 g/L proposal is that the performance of flooring systems in aircraft hangars and automotive repair facilities will be greatly reduced. This could result in a shorter coating life span and in the long term could lead to even higher VOC emissions due to more frequent repainting.

8-11 Metallic Pigmented Coatings Definition

The metallic category for both the National AIM Rule and the SCAQMD Rule 1113 place requirements on the amount of metallic pigment that a coating must contain in addition to VOC limits to comply with the metallic category.

Things are not always as they appear and this is especially true for metallic finishes. Many of the colors that appear metallic do not meet the definition of metallic. This is because the metallic content is determined by the weight of metallic pigment per unit volume and not the appearance of the coating.

8-12 Metallic pigment is defined as "particles of flakes of nonoxidized metals or alloys used as pigments to modify the optical characteristics of a paint, to hide the substrate, modify the color, or adjust other properties" (14). This means that any compounded metal like tin oxide, aluminum oxide and iron oxide are not counted as metallic pigment when making the calculations of metallic pigment content for both the AIM Rule and SCAQMD Rule 1113. Many of the metallic finishes that Tnemec offers utilize Mica for the lustrous metallic appearance. Metallic paint is defined as a "paint, which, on application, gives a film with a metallic appearance." (15). Mica is a "complex of hydrous potassium-aluminum silicate minerals" and is not considered a metallic pigment by definition although it yields an appearance that meets the definition of metallic paint (16).

8-13 Tnemec has 107 metallic colors in two product lines that any reasonable person would consider metallic by evaluating their appearance. I have enclosed a sample panel for your review of a metallic paint formulation that meets the definition of a metallic paint that does not contain any elemental metallic pigment. Only 25 of these 107 colors will meet the metallic pigmented coatings definition. What is the staff's intent for the metallic pigmented category? I believe that the intent of having a metallic coatings definition was to allow the use of decorative products that require more solvent and the subsequent lower viscosity to allow these pigments to orient during the curing process to yield the metallic appearance. The CARB Staff reiterates this intent where they indicate, "Metallic pigmented coatings produce a dry film that has a metallic appearance." (17). In addition to the metallic appearance, Mica is chemically inert material that offers improved color and exterior performance over elemental metallic pigments.

8-14 It is important that the SCAQMD staff consider inclusion of wet ground Mica as an acceptable pigment for the metallic pigmented coatings definition. This will provide much more latitude for metallic architectural coatings in their color choices and result in the additional benefit of improved exterior performance. After the launch of our "special effect, metallic appearance" product line it has been very interesting how architects have accepted these unusual appearance field-applied coatings. We continue to see more and more specifications that utilize these coatings. Some contain metallic pigments but the majority of them do not. Again, we suggest that the Rule 1113 definition for "Metallic Pigmented Coatings" be expanded to include both metallic pigmented coatings and those that contain special mica pigments that also give the metallic appearance.

- Continued -

Industrial Maintenance

8-15 We suggest that more time be given for compliance with the 250 g/L Industrial Maintenance category. Coatings that meet this VOC guideline and at the same time provide long term performance are not prevalent and time is needed to provide testing data to support and field prove the products and gain market acceptance. The staff indicated at the August 21, 2002, public workshop that the reasoning behind having the Essential Public Service category to remain at 340 g/L was because they have more elaborate testing and specifications and need to be allowed more time for compliance. The testing required by the essential public service coatings users are not different than those used by general industry.

8-16 Exterior finishes generally need at least one year of actual field exposure, coatings for immersion in water or chemicals need at least one year laboratory testing before the product can be recommended and the AWWA D 102 specification for potable water tanks requires at lease 18 months field immersion exposure for all inside system products (18). In addition there are private utilities and private bridges where the industrial maintenance category will be required for the exact same applications where the public utilities and public bridges are provided more time for compliance. It is reasonable for the staff to treat the industrial Maintenance category the same as the Essential Public Service category and set the limit at 340 g/L.

Essential Public Service Report

8-17 We would like to receive a copy of the report and be given a reasonable amount of time to review and comment on the results prior to implementation of this category.

Interim Limits Implementation

8-18 The interim limits should not be implemented until at least 8 months after the revised rule is adopted by the SCAQMD board. The averaging program requires a program to be submitted at least six months prior to the start of the compliance period (19). If the rule is adopted as written companies will not be given the proper amount of time to develop a program based on the rule as it is adopted and the compliance date of January 1, 2003. Additional time is also needed to allow for the 45-day review of an averaging program by the Executive Officer.

2006 VOC Limits

8-19 In addition, any VOC limits set for the future (e.g., the 2006 limits) should be stricken from the next revision of Rule 1113. Any such lower limits should not be set until it is proven that coatings technology has caught up with the lower limits and field proven replacement products are available that meet the lower VOC limit. To date, it is our opinion, that coatings technology has not yet caught up to many of the limits you are proposing to take effect in 2006. It is our interpretation that the PAR 1113 if approved as written will automatically implement the 2006 VOC limits without any additional action by the staff or the board. We recognize that it is the intent of the staff to review these limits prior to the 2006 implementation date, however if some unforeseen circumstance would occur and this did not happen the law should not take effect by default especially since proven technology to meet the 2006 limits is not currently available. A compromise might be to list the 2006 and 2008 limits as "proposed" and require a staff review and approval by the board in the future for these limits to be implemented. One benefit of having the limits listed as proposed in the actual rule is that it will provide coatings manufacturers a clear understanding of coatings that they should try and develop if technically feasible in the future.

- Continued -

Tnemec appreciates the staff's conscientious efforts in this matter and their consideration of the points we have presented above. We have enclosed copies of several of the references cited below to provide supporting documentation. We can provide additional information if needed. If you have any questions or require additional information please give me a call at (816) 326-4305 or e-mail frakes@tnemec.com.

Sincerely,

TNEMEC CO., INC.

Kyle R. Frakes

Kyle R. Frakes
R&D Coordinator

KRF02050:omb

cc: Mike Bauer
Sam Yankee
Tony Hobbs
Mark Thomas
Remi Briand
Naveen Berry - SCAQMD

References:
(1) South Coast Air Quality Management District, *Draft Proposed Amended Rule 1113 – Architectural Coatings*, 8/1/02 p7
(2) United States Environmental Protection Agency, *Code of Federal Regulations*, Vol. 63 No. 176, Sep. 11, 1998, p48877
(3) State of California Air Resources Board, *Staff Report for the Proposed Suggested Control Measure for Architectural Coatings*, Vol. II Chap. VI Section B.10
(4) Brevort Melampy and Shields, *Updated Protective Coating Costs, Products, and Service Life*, NACE Corrosion 96, Paper No. 477
(5) Tnemec Company Inc., *91-H20 Hydro-Zinc 2000*, March 2002
(6) The Sherwin Williams Company, *Corothane I Galvapac Zinc Primer*, Revised 08/02
(7) Mike Bauer, *Organic Zinc-Rich Primer for the Interior and Exterior or Potable Water Tanks*, SSPC 1997 Seminars, SSPC #97-09, 5/24/00
(8) South Coast Air Quality Management District, *Staff Report – Proposed Amended Rule 1113*, May 1999, p41
(9) The Sherwin Williams Company, *Zinc Clad VI Water Based Organic Zinc-Rich Epoxy*, Revised 1/2002
(10) Tnemec Company Inc., *Technical Bulletin No. 97-03*, Inorganic vs. Organic Zinc Rich Primers, April 1997
(11) South Coast Air Quality Management District, *Staff Report – Proposed Amended Rule 1113*, May 1999, p36
(12) Air Products and Chemicals, Inc., *Adura 200 Polyol for High-Performance Waterborne Coatings*, Rev. 4/01, p3
(13) Merriam Webster, *Webster's Ninth New Collegiate Dictionary*, 1988, p590
(14) Federation of Societies for Coatings Technology, *Coatings Encyclopedic Dictionary*, 1995 p177.
(15) Federation of Societies for Coatings Technology, *Coatings Encyclopedic Dictionary*, 1995 p176.
(16) Mica, http://www.mineralgallery.co.za/mica.htm
(17) State of California Air Resources Board, *Staff Report for the Proposed Suggested Control Measure for Architectural Coatings*, Vol. II Chap. VI Section B.10
(18) American Water Works Association, ANSI/AWWA D102-97: Coating Steel Water Storage Tanks, 1997, 4.3.2.1 p8
(19) South Coast Air Quality Management District, *Draft Proposed Amended Rule 1113 – Architectural Coatings*, November 1, 2002, Appendix A p23

References *

(1) South Coast Air Quality Management District, *Draft Proposed Amended Rule 1113 – Architectural Coatings*, 8/1/02 p7
(2) United States Environmental Protection Agency, *Code of Federal Regulations*, Vol. 63 No. 176, Sep. 11, 1998, p48877
(3) State of California Air Resources Board, *Staff Report for the Proposed Suggested Control Measure for Architectural Coatings*, Vol. II Chap. VI Section B.10
(4) Brevort Melampy and Shields, *Updated Protective Coating Costs, Products, and Service Life*, NACE Corrosion 96, Paper No. 477
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(6) The Sherwin Williams Company, *Corothane I Galvapac Zinc Primer*, Revised 08/02
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(8) South Coast Air Quality Management District, *Staff Report – Proposed Amended Rule 1113*, May 1999, p41
(9) The Sherwin Williams Company, *Zinc Clad VI Water Based Organic Zinc-Rich Epoxy*, Revised 1/2002
(10) Tnemec Company Inc., *Technical Bulletin No. 97-03*, Inorganic vs. Organic Zinc Rich Primers, April 1997
(11) South Coast Air Quality Management District, *Staff Report – Proposed Amended Rule 1113*, May 1999, p36
(12) Air Products and Chemicals, Inc., *Adura 200 Polyol for High-Performance Waterborne Coatings*, Rev. 4/01, p3
(13) Merriam Webster, *Webster's Ninth New Collegiate Dictionary*, 1988, p590
(14) Federation of Societies for Coatings Technology, *Coatings Encyclopedic Dictionary*, 1995 p177.
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(16) Mica, http://www.mineralgallery.co.za/mica.htm
(17) State of California Air Resources Board, *Staff Report for the Proposed Suggested Control Measure for Architectural Coatings*, Vol. II Chap. VI Section B.10
(18) American Water Works Association, ANSI/AWWA D102-97: Coating Steel Water Storage Tanks, 1997, 4.3.2.1 p8
(19) South Coast Air Quality Management District, *Draft Proposed Amended Rule 1113 – Architectural Coatings*, November 1, 2002, Appendix A p23

*

* References 3-7, 9,10, & 12 submitted with TNEMEC's comment letter have not been incorporated into Appendix C; however, they are available upon request.

STATE OF CALIFORNIA
ENVIRONMENTAL PROTECTION AGENCY
AIR RESOURCES BOARD

P. O. Box 2815
Sacramento, California 95812

September 3, 2002

ARB Staff Rule Review Results

To: Laki T. Tisopulos, Ph.D., P.E., Planning and Rules Manager
Planning, Rule Development, and Area Sources
South Coast Air Quality Management District
Telephone Number: (916) 396-3123
e-mail: ltisopulos@aqmd.gov

From: Dave Brown, (916) 324-1129
e-mail: dabrown@arb.ca.gov

The following draft rule, which was the subject of a public workshop held by your District staff on August 21, 2002, was received by us on August 12, 2002, for our review:

Rule 1113 Architectural Coatings (for amendment)

9-1 The Air Resources Board staff has reviewed the rule and, based on the information available to us at this time, we have no comments.

The rule was examined by the Stationary Source Division, the Enforcement Division, and the Monitoring and Laboratory Division. Our Stationary Source Division staff is working directly with your staff on possible revisions to the rule language.

If you have any questions, please contact me by e-mail or at the telephone number above.

Environmental Mediation Inc.

Providing Excellence, Innovation And Vision For Our Clients

Howard Berman, Esq.
President

Tuesday, September 3, 2002

Mr. Michael Krause
c/o CEQA
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

10-1

Environmental Mediation, Inc., represents the Dunn-Edwards Corporation ("Dunn-Edwards"), a 75 year old, California based western regional paint manufacturer and retailer. The following are Dunn-Edwards written comments to the South Coast Air Quality Management District's ("District") Draft Rule 1113 – Architectural Coatings ("Rule 1113").

These comments are in addition to comments made on Dunn-Edward's behalf at the District's August 21, 2002 Public Workshop.

On May 14, 1999, the then three owners of Dunn-Edwards (Ken, Ed, and Jim Edwards) testified at the District's Governing Board meeting and alone and in the face of an industry united against the District, supported the adoption of amendments to Rule 1113. Subsequently, Dunn-Edwards stood in support of the rule at the District's Governing Board meetings, workshops, and other meetings (including meetings with the United States Environmental Protection Agency).

While Dunn-Edwards supports the amendments proposed by this current regulatory action generally, it has issues, concerns, and comments regarding specific proposed amendments. In addition, although Dunn-Edwards supports the District in its efforts to re-adopt the "1999" amendments, it urges the District to make certain modifications to the rule in order for it to adhere to the various coatings technological feasibility studies that the District sponsored. These proposed modifications are, to a large extent, consistent with the Suggested Control Measure (SCM) for Architectural Coatings adopted by the California Air Resources Board.

Before spelling out our comments and proposed changes, Dunn-Edwards believes that an alternative exists to adopting Rule 1113. Dunn-Edwards proposes that the District adopt an architectural coatings rule based on the SCM, as many other air districts in the state have done. The SCM was developed subsequent to the "1999" amendments, and benefited from extended discussions, refinements and "lessons" learned from the District's rulemaking process. As evidence of this, during the architectural coatings rulemaking processes at the other Districts, while the coating industry expressed some objections to the SCM-based rule,

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10-2 strong opposition did not emerged (no law suits have been filed challenging the rules). In addition, the District itself voiced strong support for the SCM, both during the rulemaking process and at the CARB hearing where the SCM was adopted. The District should adopt an SCM based rule, and then propose adopting changes during its 2003 scheduled rule amendment process that deal with VOC reductions that are to occur in 2006. Furthermore, if the District adopts an SCM-based rule, the District would have a rule consistent with other air districts within the state. Consistency and predictability are important goals of any regulatory action. Since the SCM achieves nearly the same VOC reductions in the same timeframe as the proposed Rule 1113, the District looses little by adopting the SCM, while the regulated community gains a rule that fits neatly into a statewide regulatory scheme.

10-3 If the District decides not to adopt an SCM-based rule, Dunn-Edwards makes the following comments:

- The District should eliminate the proposed modification to the definition of Metallic Pigmented Coatings to keep the definition consistent with the ARB and EPA definition.
- The District should eliminate the proposed modification to the definition of Non-Flat Coatings. The conjunction between the test limits must be "and" instead of "or" to avoid ambiguity and inconsistency with the definition of Flat Coatings.
- The District should remove extraneous last sentence from the definition of Quick-Dry Primers, Sealers & Undercoaters. The statement is erroneous and confusing, since the category will not be "subsumed" in any sense under the general Primers, Sealers & Undercoaters category.
- The District needs to revise the definition of Recycled Coatings to match the SCM definition, and delete the proposed 100g/L limit effective July 1, 2006. If kept at the current proposed limit would, the District will, in effect, ban the recycling of coatings by imposing such a low and impractical VOC level.
- The District should revise the proposed "ceiling limit" for Quick-Dry Primers, Sealers & Undercoaters to 450 g/L, consistent with ARB recommendation implemented in other local districts statewide.
- The District should revise the propose "sell-through" provision for higher-VOC averaged products, consistent with ARB recommendation implemented in other local districts statewide. It is not unusual for coatings to be returned to Dunn-Edwards months or even years after the original sale of the paint. Since the coating VOC content has already been accounted for when it was originally sold, Dunn-Edwards should be allowed to sell the coating.

10-4 In addition, Dunn-Edwards maintains that an analysis of the technology assessment conducted by the District warrants other changes to the Rule. If the KT-Tator data is analyzed as proposed below, then the District should adopt the changes to Rule 1113 described after these charts.

Revised Summary Tables
Summary Table A
Performance of "Lower VOC" Floor Coatings (<100 g/L versus >100 g/L)*

Test Protocol	Product B2	Product C3**	Product E6
Adhesion (shear)	Worse than Higher VOC	Better than Higher VOC	Better than Higher VOC
Adhesion (tensile)	Worse than Higher VOC	Better than Higher VOC	Worse than Higher VOC
Chemical Resistance	***	***	***
Abrasion Resistance	Worse than Higher VOC	Better than Higher VOC	[Not tested.]
Impact Resistance	Better than Higher VOC	Equivalent to Higher VOC	Better than Higher VOC
Pencil Hardness	Worse than Higher VOC	Worse than Higher VOC	Better than Higher VOC
Efflorescence Resistance	Equivalent to Higher VOC	Equivalent to Higher VOC	Worse than Higher VOC

* Based on a performance comparison of three (3) "lower VOC" products versus three (3) "higher VOC" products.
** Product C3 is a two-component epoxy, which is unsuitable for exterior use or homeowner/general consumer use.
*** Performance varied depending on chemical. In most instances, performance is "Equivalent to Higher VOC."

Summary Table B
Performance of "Lower VOC" High Gloss Non-flat Interior Paints
(<150 g/L versus >150 g/L)*

Test Protocol	Product F7	Product G8**	Product I12
Sag Resistance	Worse than Higher VOC	Better than Higher VOC	Worse than Higher VOC
Open Time/Lapping	Equivalent to Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC
Adhesion	Equivalent to Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC
Scrub Resistance	Worse than Higher VOC	Worse than Higher VOC	Better than Higher VOC
Blocking Resistance (ambient temp.)	Worse than Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC
Blocking Resistance (elevated temp.)	Worse than Higher VOC	Worse than Higher VOC	Worse than Higher VOC

* Based on a performance comparison of three (3) "lower VOC" products versus three (3) "higher VOC" products.
** Product G8 is a Semi-Gloss industrial maintenance enamel. As of July 1, 2002, industrial maintenance coatings are not allowed for residential use in the SCAQMD.

Summary Table C
Performance of "Lower VOC" High Gloss Non-flat Exterior Paints
(<150 g/L versus >150 g/L)*

Test Protocol	Product F7	Product D14	Product I12
Sag Resistance	Worse than Higher VOC	Worse than Higher VOC	Worse than Higher VOC
Open Time/Lapping	Equivalent to Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC
Adhesion	Worse than Higher VOC	Equivalent to Higher VOC	Worse than Higher VOC
Scrub Resistance	Equivalent to Higher VOC	Better than Higher VOC	Better than Higher VOC
Blocking Resistance (ambient temp.)	Worse than Higher VOC	Worse than Higher VOC	Worse than Higher VOC
Blocking Resistance (elevated temp.)	Worse than Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC
Accel. Weathering	Equivalent to Higher VOC	Equivalent to Higher VOC	Worse than Higher VOC

* Based on a performance comparison of three (3) "lower VOC" products versus three (3) "higher VOC" products.

Summary Table D
Performance of "Lower VOC" Interior Primer/Sealer/Undercoaters
(<200 g/L versus >200 g/L)*

Test Protocol	Product K16	Product L17	Product H18
Grain Raising	Equivalent to Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC
Adhesion	Equivalent to Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC
Sandability	Worse than Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC
Chemical Resistance	Equivalent to Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC

* Based on a performance comparison of three (3) "lower VOC" products versus three (3) "higher VOC" products.

Summary Table E
Performance of "Lower VOC" Exterior Primer/Sealer/Undercoaters
(<200 g/L versus >200 g/L)*

Test Protocol	Product H21	Product D23	Product M25
Grain Raising	Equivalent to Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC
Adhesion	Equivalent to Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC
Tannin Stain Blocking	Worse than Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC
Accel. Weathering	Equivalent to Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC

* Based on a performance comparison of three (3) "lower VOC" products versus three (3) "higher VOC" products.

Summary Table F
Performance of "Lower VOC" Interior Stains for Bare Wood
(<250 g/L versus >250 g/L)*

Test Protocol	Product O28**	Product O29**	Product O31
Open Time/Lapping	Equivalent to Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC
Grain Raising	Equivalent to Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC
Adhesion	Equivalent to Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC
Tannin Stain Blocking	Equivalent to Higher VOC	Equivalent to Higher VOC	Equivalent to Higher VOC
Scrub Resistance	Worse than Higher VOC	Equivalent to Higher VOC	[Not tested.]

* Based on a performance comparison of three (3) "lower VOC" products versus three (3) "higher VOC" products.

** Product may have VOC content >250 g/L, as measured by KTA-Tator and SCAQMD.

ANALYSIS AND RECOMMENDATIONS

10-5 Based on the test results summarized in these tables, we find that the data would support recommendations to amend Rule 1113 with respect to four categories of coatings, as described below. These amendments would be for the purposes of ensuring availability of adequately performing coatings to all consumers, and to further harmonize the requirements of Rule 1113 with those of the ARB Suggested Control Measure ("SCM") for Architectural Coatings. Major air districts throughout the state have now adopted local versions of the SCM; appropriate amendments to Rule 1113 would bring within reach the long-sought but elusive goal of statewide uniformity of regulation, which enhances rule effectiveness and enforceability.

10-6 FLOOR COATINGS: Effective July 1, 2002, Rule 1113 sets a VOC content limit of 100 g/L on the Floor Coatings category, dropping the limit to 50 g/L on July 1, 2006. The SCM has a single limit of 250 g/L effective January 1, 2003. Under U.S. EPA's national rule for architectural coatings, this category is assigned a limit of 400 g/L. The test results show that Floor Coatings meeting the 100 g/L limit generally perform worse than higher VOC products in key characteristics such as adhesion and effluorescence resistance. The best performing lower VOC product is a two-component epoxy, which is unsuitable for exterior use because of epoxy susceptibility to ultraviolet degradation. This product is also unsuitable for use by homeowners and general consumers because of the technical requirements of handling a two-component coating with a short "pot life" of only two hours under normal conditions, and "dramatically" less at temperatures above 77 degrees Fahrenheit according to the product's technical data sheet. Any mixed coating material left at the end of its pot life will harden into an unusable mass.

RECOMMENDATION: Amend Rule 1113 to include a VOC content limit of 250 g/L for Floor Coatings, with no future-effective lower limit, consistent with the SCM.

10-7 HIGH GLOSS NON-FLAT COATINGS: Under Rule 1113, these coatings are subsumed in the Non-flat Coatings category, with a VOC content limit of 150 g/L effective July 1, 2002. The ARB survey of year 2000 architectural coatings distributed in California found that High Gloss Non-flats have a higher average VOC content than Medium Gloss or Low Gloss Non-flats, and substantially less product volume. Consequently, the SCM includes a separate category for High Gloss Non-flats, with a VOC content limit of 250 g/L. The test results show that lower VOC High Gloss Non-flats, both interior and exterior, are generally worse than or equivalent to higher VOC products.

RECOMMENDATION: Amend Rule 1113 to include a separate category for High Gloss Non-flat Coatings, with a VOC content limit of 250 g/L, consistent with the SCM.

10-8 SPECIALTY PRIMERS: As currently defined in Rule 1113, this category is for primers used to seal fire-, smoke-, or water-damaged substrates, or to condition excessively chalky surfaces; such products must be labeled accordingly. The VOC content limit for this category is currently 350 g/L, dropping to 100 g/L on July 1, 2006. A similar category for Specialty Primers, Sealers & Undercoaters exists in the SCM, also with a limit of 350 g/L. The SCM category, however, is defined to explicitly include coatings used "to block stains," because not all stains are associated with fire-, smoke-, or water-damaged substrates. Some difficult staining materials – such as felt-tip pens, wax crayons, lipstick, rust, wood extractives, and dyes – will bleed through or resist several coats of conventional primers and topcoats. The test results do not compare the stain blocking properties of interior primers, and compared exterior primers only with respect to blocking stains from tannins (wood extractives common in redwood and cedar). In that case, the lower VOC primers were worse than or equivalent to higher VOC products. The best product of all those tested was a higher VOC quick-dry stain-blocking primer.

RECOMMENDATION: Amend Rule 1113 to add the phrase "or to block stains" to the definition of Specialty Primers, and to revise the labeling requirement to include that phrase, consistent with the SCM.

10-9 INDUSTRIAL MAINTENANCE COATINGS: Although Industrial Maintenance Coatings were not specifically part of this study, some minor amendments with regard to this category would help to ensure the effectiveness and efficiency of requirements for other categories, including those in the study. As currently defined, Industrial Maintenance Coatings "are not for residential use" effective July 1, 2002 – the same date that a lower VOC content limit of 250 g/L takes effect for the category. The "residential use" restriction originated at a time when this category had a much higher VOC content limit than most other categories, and was intended to promote the use of lower VOC alternatives for residential use. The 250 g/L limit, however, will be lower than many available alternatives. It would make no sense to prevent a homeowner from using a 250 g/L corrosion-inhibiting Industrial Maintenance Coating, if it were an adequate substitute for a 400 g/L Rust Preventative Coating. Recognizing this, the SCM does not include a "residential use" restriction on Industrial Maintenance Coatings at 250 g/L. Also, the SCM lists Industrial Maintenance Coatings among those categories exempted from the "Most Restrictive VOC Limit" provision, which would otherwise require such products to meet any lower VOC limit applicable to another category that may functionally overlap with Industrial Maintenance Coatings (e.g., Floor Coatings, Non-flat Coatings, and Primers, Sealers & Undercoaters).

RECOMMENDATION: Amend Rule 1113 to remove the "residential use" restriction in the definition of Industrial Maintenance Coatings, and add this category to the list of those exempted from the "most restrictive limit" provision in Section (d)(6).

If you have any questions regarding these comments, please call either myself or Robert Wendol (323-771-3330).

The Valspar Corporation
Consumer Products Laboratory
300 Gilman
Wheeling Il. 60090

Sept. 3 2002

To: Mr. Dave DeBoer, Mr. Mike Krause , AQMD

Dear Dave and Mike,

11-1 I am writing this time in support of the NPCA's Table of Standard changes that they have proposed. In particular, I want to make the AQMD of some of our further work in the area of in-can skinning and VOC levels. If you remember, I mentioned this some months ago and now have more data to rely upon.

11-2 Our studies indicate that in higher volume solids non-flat paints (>33% NVV) there is a propensity to form skins "in the can" if the VOC levels drop below about 180 – 190 grams/liter VOC. We think that this is a function of having less glycol in combination with having more resin (and therefore less water) in these paints. A large portion of Valspar's paint line volume consists of products in this high solids non-flat category, with typical volume solids numbers in the 33% to 42% NVV range. Attempts to correct this problem at 150 VOC or less have been futile. It appears to be independent of which resin is employed and any other factor other than glycol content. The skinning did not show up in lab testing since it is primarily a gallon can issue; hence it became more evident once the lower VOC formulations were being produced in larger runs of gallon cans.

11-3 Unfortunately testing shows that we are going to have customer complaints because of this issue. The skins that form on the lid and on top of the paint are distributed through the paint when it is shaken or stirred, resulting in small (some not so small), but very noticeable specs on the paint film when it is brushed or rolled out. This condition will be un-acceptable to the consumer. We actually stumbled upon this phenomena some months ago and have mentioned it to several other companies, who have since confirmed our fear that this a potentially large customer satisfaction issue. Literally every gallon made in this high end category has the potential to have this problem.

11-4 Part of the table of standards changes that is being proposed is to **add a "non-flat high solids**" category, which would define these paints as non-flat (usual definition of non-flat), in excess of 33% volume solids. This will enable us to continue with the current products at least until it can be studied further.

Please take this under very serious advisement, and add this much needed category.

Very truly yours,

Paul S. Sara
Technical Director, Valspar Architectural Group
847-520-8600

From: Jim Marzolino [JMarzolino@behr.com]
Sent: Wednesday, September 04, 2002 10:12 AM
To: David De Boer; Michael Krause
Subject: Comments to the KTA Study in Relation to Rule 1113

Questions from 8/21/02 AQMD me...

Mr. Krause and Mr. DeBoer,

Attached for you consideration for the Rule 1113, Architectural Coatings, are some comments and questions concerning the KTA study for technical assessment of Low VOC High Gloss Enamels and Floor Coatings.

If you should have any further questions or comments or need clarification, do not hesitate to email me at jmarzolino@behr.com or call me at 714-545-7101 ext. 2566.

Sincerely,

James R. Marzolino
Sr. Env. Engineer
Behr Process Corp.

David De Boer

From:	John Wu [JWu@behr.com]
Sent:	Tuesday, September 03, 2002 11:42 AM
To:	JMarzolino@behr.com; MButler@behr.com
Cc:	AWaite@behr.com
Subject:	Questions from 8/21/02 AQMD meeting

Questions
ncerning KTA study.

Attached are comments and questions from the meeting last month.

September 3, 2002
Behr Process Corporation

12-1 **Comments and questions concerning the KTA study for technology assessment of low VOC High Gloss Enamels and Floor Coatings.**

High Gloss Coatings

12-2

1. **What gloss levels are obtained using the KTA study of high gloss enamels? Do they have any criteria to qualify as a "high gloss or gloss enamel"?**
2. **Blocking results from the study are dubious because normally high gloss paints tested at elevated temperatures perform worse than at ambient temperature. The low VOC paints should have performed worse than the regular VOC high gloss enamels. This is due to the use of softer latex to obtain the low VOC levels. Open time and blocking are a balance of properties and typically the low VOC coatings have much less open time than the regular VOC high gloss enamels.**
3. **No pass/fail controls were used to compare the data. What is rated as "equal" or "worse than" are compared to what quality of coating. One could find poor quality paints at regular VOC that perform just as poorly at low VOC. There must be some standards/minimum criteria used when evaluating whether a coating is worse than or equal to.**

Floor Coatings

12-3

1. **From the limited data collected in the KTA study, it is apparent that low VOC floor coatings lack abrasion resistance, hardness, and adhesion.**
2. **2-component floor coatings are lumped together with 1-component floor coatings. The 2-component systems are not do-it-yourself friendly coatings and require either contractors or experienced applicators. They also are more toxic to use and the technology assessment should be applied to industrial maintenance coatings not floor coatings.**
3. **Similar to the argument for high gloss enamels, the low quality floor coatings should not be used to compare whether a coating at low VOC is comparable or not to regular VOC floor coatings.**

12-4

Summary:

A) Low VOC high gloss and floor coatings exhibit inferior properties to their higher VOC counterparts.

B) No controls(minimum performance criteria) were used to measure whether a low VOC coating performs "equal to" or "worse than" regular VOC products. It is not scientific to evaluate a coating that does not perform well for its end use application by comparing it to poor performing coatings. None of the products used in the KTA study are highly rated coatings.

C) As stated in the 8/21/02 meeting, waterborne floor coatings contribute less VOCs at 250 g/L than the solvent-based coatings at 100 g/L.

Dan Russell
Planning, Rule Development and Area Sources
SCAQMD
21865 E. Copley Drive
Diamond Bar CA 91765

August 30, 2002

Dear Sir,

13-1 Both the NTS and the KTA Tator Reports used by Staff in support of the PAR 1113 are seriously flawed. Neither document is a sound, unbiased, scientific study of the performance of coatings either high or low in VOC.

13-2 First, the NTS Report is not even complete let alone a report! It is only a compilation of data points for the physical properties obtained from the coatings and "coating systems" tested. The manner in which this document has been presented is not as a finished report, but only as raw data points that are open to a different interpretation by any person that reads it. NTS has failed to evaluate this data and write a comprehensive report of its findings and interpretations of the data collected.

13-3 Second, the field-testing portion of this study has never been done despite statements over the last two years that it would be done. This testing is important because it is the only way real world testing of application properties, coverage, hiding power, spreading rates, etc. can be evaluated under real or normal conditions.

13-4 Third, the "Real Time" exposure of coatings is not real in any way! The weathering method used is considered an accelerated test method. Exposure of panels at 45 degrees South is an accelerated test in common usage by the Coatings Industry. The method of application used in preparing the panels is not one normally used. The coating manufacturers recommended application method(s) should have been used and not a wire wound rod type applicator. But the biggest problem with this exposure is in the way the panels were handled before exposure. They should not have been wrapped and stored for six months prior to being exposed! The panels should have been exposed within one week of the application of the coatings (see ASTM D 1006 and D1014 for standard methods of exposure testing). The prolonged curing method leads to questions on the validity of the test results.

13-5 Lastly, the cleaning method used during the exposure period has resulted in abnormal gloss readings. "Polishing" of the surface when cleaning will usually result in burnishing the coating film to a higher gloss giving erroneous and false test results as will the removal of the products of weathering (i.e. Chalk or oxide films). Normally if this cleaning method is to be used, a duplicate set of panels is exposed without cleaning so that the effects of this process can be determined and reported. This was not done! This matter received considerable discussion during TAC/Staff meetings after it was discovered towards the end of the exposure period of these panels. This also has adversely affected the validity of the exposure data.

13-6 I am sorry to say that the KTA Tator report is also inaccurate and biased; I did have high hopes that it could be done correctly with good test results. Because of the reporting method chosen by Staff, over objections by the TAC members, the report lacks unbiased and accurate reporting.

13-7 The change to use reported VOC from manufacturer's documents, such as MSDS and PDS, as the reporting criteria have biased this report. The fact that some of the low VOC products do not test as low for VOC as reported by the manufacturers is glossed over by using this method of reporting. Using these products as low VOC coatings for comparison purpose adversely affects the validity and bias of the report.

13-8 The other major fault of this report is that one whole class of products tested and included in the report, did not meet the criteria for the coating type that was to be tested. Namely, the Non-flat High gloss coatings. To be a product in this class of coatings, the gloss must be at least 70 on a 60-degree gloss instrument per the CARB SCM definition. None of the coatings tested in this category can be shown to meet that requirement. Therefore no valid claims as to performance quality can be made for this category as has been done.

13-9 To remain unbiased and accurate, this report should report the facts as tested. This should include comments on both the failure of some coatings to measure VOC at their reported levels and that some coatings tested, failed to meet the requirements of the original test criteria or protocol and this has not been done. Any subsequent testing of VOC by South Coast should be reported separately and not used to influence how KTA Tator's final report was written.

If there are any questions, please feel free to contact me at Smiland Paint Company, 620 Lamar Street, Los Angeles, CA 90031. Phone: 323-222-7616 ext. 282 or E-mail: raymond.russell@smiland.com

Sincerely,

Raymond F. Russell
Senior Chemist
Smiland Paint

TEX·COTE®
TEXTURED COATINGS OF AMERICA, INC.

September 4, 2002

Mr. Michael Krause
21865 E. Copley Drive
Diamond Bar, CA 91765-4182
(909) 396-3324
mkrause@aqmd.gov

Dear Mr. Krause:

14-1 Textured Coatings of America, Inc., (hereinafter "TCA") is a small national paint and coatings manufacturer having factories in California and Florida. We are a member of the National Paints and Coatings Association (NPCA) as we manufacture architectural industrial maintenance coatings (AIM). We would like to address some concerns regarding the South Coast Rule 1113 for volatile organic compounds (VOC) reductions in AIM. We would like to state our position regarding South Coast Rule 1113 and we hope you will consider our points that we state throughout this letter.

First, we want you to know that we have been actively involved with the National Paint and Coatings Association and their response to Rule 1113. We support the NPCA in their draft document. We also wish to reiterate several points that NPCA has made in their draft document in areas where our company is a specialty, or niche manufacturer.

14-2 **SPECIALTY PRIMERS**

We are seeking an addition to the definition of a specialty primer category, one that would make Rule 1113 equivalent to the California SCM. The new definition requested is:

"*Specialty primer* is a coating formulated and recommended for application to a substrate to block stains, odors or efflorescence; to seal fire, smoke or water damage; to condition excessively chalky surfaces; or recommended for application to exterior wood or wood-based surfaces, or for highly alkaline cement, plaster, and other cementitious surfaces. An excessively chalky surface is one that is defined as having a chalk rating of four or less as determined by ASTM Designation D 4214-98 Photographic Reference Standard No. 1 of the Federation of Societies For Coatings Technology 'Pictorial Standards for Defects.'"

The main function of a primer is to provide compatibility with the substrate resulting in a stable finish coat. Maximum penetration of the vehicle is vital in order to anchor the primer successfully as well as thoroughly stabilizing the surface for the topcoat. Emulsion or Latex systems are limited in the amount of substrate penetration as well as

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www.texcote.com

tying up a surface that might be coated with a caulk or latence. Also, if a latex primer is applied to fresh, green, or highly alkaline surface, it will delaminate or even breakdown chemically.

14-3 With the lowering the VOC's to primers to 200-grams/liter, the ability to flow, level, penetrate and maintain a wet edge is questionable. The results are holidays, dry spray particles and heavy overlapped films. The use of exempt solvents to achieve a VOC of 200-grams per liter would further contribute to the problems of film formation and application problems, especially cobwebbing. Many materials are simply not soluble with the percentage of exempt solvent needed to bring the VOC's down to 200-grams/liter.

14-4 There has been much rhetoric regarding the use of new curing compounds and bond breakers that break down with ultraviolet or that are compatible with coatings. There have been many instances recently where we are questioned about the conditioning of the surfaces after use of these coatings. Upon contacting the manufacturers of these materials, they all say if the coating literature says must be free of laitance, the walls must be cleaned. One of the manufacturers continued with the comment that if the bond breaker was applied in a heavy coat, sand blasting might be necessary to remove the residue. So even after power washing the walls, there is often residue remaining on the wall that will inhibit a waterbased primer's adhesion.

14-5 Attached are pictures where the walls were power washed, a water based primer was applied, followed by a waterbased topcoat. The remaining form oils caused the adhesion of the primer to fail, where the entire system needed to be replaced. From experience, we know a solvent-based primer, even at the low level of 350-grams per liter, would have remained in place. If there is failure due to the loss of adhesion of a primer, the building will need to be recoated. This creates added VOC's to the environment. The final photograph is a sample that was done using a solvent-based primer, where the adhesion was judged to be excellent.

14-6 We have seen many failures of waterborne coatings, both one and two-part systems being applied to either highly alkaline cementitious surfaces, or as a result of going over a previously power washed surface that contains residue of the form oils used in manufacturing the cementitious panels. The primer, and often the topcoat applied to it, peels off in large sheets, resulting in the entire building being recoated. This is not a rare occasion, but is often seen in the field. Specialty primers, manufactured for application over green, highly alkaline concrete surfaces, where there are often residual form oils, are often used after these failures occur. In reality, without this addition to specialty primer definition, the result may be more VOC's are emitted as the building needs to be repainted. The technology for a waterborne primer that works under these conditions has not been developed, although many companies have spent much time to develop such a product.

14-7 Recent testing in our laboratories involved testing waterborne coatings, with many different additives over residual form oils. Five top selling waterbased commercial primers were tested, as well as the addition of various adhesion additives claiming to improve the adhesion over oily surfaces. In addition, enough solvent was added to a waterbased primer to take it to 200-grams per liter, as well as 350-grams per liter. A 350- gram per liter solvent borne coating was used as a control. The 350-gram per liter solvent borne coating exhibited very good adhesion, with one of the commercial waterbased primers performing as an equal. This primer was labeled at 350-grams per liter. The other commercial primer (also at 350-grams per liter) had adequate adhesion, as well as the waterbased primer that had 350-grams per liter total solvent. The other commercial waterbased primers, all formulated at 200-grams per liter failed the adhesion test. None of the additives were able to cut through the form oils, even with a 200-gram per liter waterbased product.

14-8 Another problem often seen in the field is with surfaces previously coated with silanes and siloxanes. The silanes and siloxanes work very well, but often, after three, five or more years, there is a desire to change the appearance of the building. Latex primers or coatings will not adhere to a surface previously coated with silanes or siloxanes. Our solvent-borne primers will penetrate these hard to resurface substrates, forming a strong bond with the surface.

14-9 There are other problems often associated with tilt-up walls, as well as cured or fresh concrete or masonry. One is the high alkalinity of the substrate. Exposure of latex primers to high alkalinity conditions will result in the breakdown of the latex, causing delamination of the cured primer. This will cause the material to come off the walls. The other problem, which is part of the current definition, is the chalky surfaces. Even after power washing, many of these substrates still have excessive chalk. Water-based systems cannot penetrate these chalky surfaces, which will again result in a failure to bond the primer to the substrate. The coating system will fail, the walls will have to be reprimed and repainted. We believe specialty primers should also include the highly alkaline surfaces, because these are also the surfaces that will have excessive chalk.

14-10 The use of a solvent-borne primer is to provide a sound surface for many types of topcoats, including water-borne or latex system. The coverage rate for a solvent primer is high, typically 200 to 300 square feet per gallon. In addition, by tying up chalky residue, and by penetrating form oil residue, or previously coated silane/siloxane substrates, the solvent primers actually reduce the need for recoating due to premature coating failure by adhesive failure. The fresh, green concrete can be coated immediately with this specialty solvent-borne primer, while a latex or waterborne primer would be used after 30 days, often tying up an entire construction project.

Product Performance

14-11 For "tilt-up" concrete, or formed-in-place concrete, we recommend specialty solvent primers to prevent failures by form oils, residual silicones or other release agents. We have seen massive failures, even recently, where latex coatings were placed over residual form oils, or previously sealed (silane/siloxane) surfaces (see enclosed photographs). The same is true for chalky surfaces and for highly alkaline surfaces. The chemistry of the primer must be suitable for the substrate on which it is being used. Waterborne systems cannot stand the highly alkaline surfaces of new concrete. Solvent borne primers, such as Tex•Cote®'s XL-70® Masonry Primer are formulated to penetrate chalky surfaces or form oils, and are chemically balanced to resist the alkaline surfaces.

14-12

Economic Impact

The modification of this definition to the Specialty Primer Category would be to include products for highly alkaline surfaces and for penetrating form oils, bond breakers or silane/siloxane coated substrates would not add a significant amount of VOC's, but would reduce the economic hardship to building contractors, occupants and owners. We have seen many cases where latex primers peel off the wall, even after the contractor has done an exceptional job of pressure washing the walls. Once the latex primer disbonds, the wall must be cleaned again, and recoated. Often, the topcoat has already been applied as well. This results in an economic hardship for the contractor, the coating manufacturer, as well as the building owner.

14-13

The use of a solvent-borne primer to provides a sound surface for many types of topcoats, including water-borne or latex systems. The coverage rate for a solvent primer is high, typically 200 to 300 square feet per gallon. In addition, by tying up chalky residue, and by penetrating form oil residue, the solvent primers actually reduce the need for recoating due to premature coating failure by adhesive failure. There is also the problem of additional VOC being released in the atmosphere. If a water-based primer is used, at 200 grams per liter, and applied twice, the result is more VOC's released than if a specialty primer was used.

14-14

Recommendation

We recommend the addition to the definition of the "Specialty Primer" category:

"*Specialty primer* is a coating formulated and recommended for application to a substrate to block stains, odors or efflorescence; to seal fire, smoke or water damage; to condition excessively chalky surfaces; or recommended for application to exterior wood or wood-based surfaces, or for highly alkaline cement, plaster, and other cementitious surfaces. An excessively chalky surface is one that is defined as having a chalk rating of four or less as determined by ASTM Designation D 4214-98 Photographic Reference Standard No. 1 of the Federation of Societies For Coatings Technology 'Pictorial Standards for Defects.'"

The primer sub-category would retain the VOC level of 350-grams/liter.

14-15

ANTI-GRAFFITI COATINGS

Although NPCA has not asked for a separate category, Textured Coatings of America, Inc. has found tremendous differences in solvent borne versus water-borne anti-graffiti coatings. Anti-Graffiti coatings are used on top of paints, coatings or murals to protect the film underneath. A sacrificial system will typically be reapplied every one to three washings. Our high performance solvent-borne urethane coating lasts for ten to fifteen washings. Eliminating the need for successive recoating also eliminates VOC emissions not only from the subsequent application of an anti-graffiti coating, but also because there is no need to repaint when the coating is protected by a hard, permanent anti-graffiti system.

Performance Based Coating

14-16 Tex-Cote® Anti-Graffiti Coatings have been used successfully since the Los Angeles Olympics. The system was approved by the City of Los Angeles, and since that time, has been specified by architects and school districts to protect walls and murals. The two-part urethane system cures within a few hours, protecting the wall or mural from marking pens, or spray paint almost immediately. Testing to date of water-based systems has shown a minimum of a 2-day cure time before the coating resists spray paint or marking pens. Even then, some stains are not fully removed when Methyl Ethyl Ketone is used to clean the walls. Textured Coatings of America, Inc., at the August 21, 2002 public workshop, submitted samples of testing that was performed on waterbased versus solvent-based anti-graffiti coatings to the South Coast Air Quality Management District. These samples clearly showed the superior films of the solvent-based anti-graffiti coating.

Technology

14-17 Tex-Cote® Graffiti Gard® IIIS is a "permanent" solvent-borne, high performance urethane anti-graffiti coating that can be washed between ten to fifteen times before it is no longer effective. Sacrificial anti-graffiti coatings (waterborne) usually last one to three washings before they must be replaced. The high performance urethane system is the best to date in film forming abilities, and early resistance to graffiti. For the most part, anti-graffiti coatings are used not only to protect walls, eliminating the need to recoat, but also protect surfaces that cannot be repainted, such as murals.

Unique Properties

14-18 The performance difference, the cost of replacing the waterborne anti-graffiti coating, and the additional VOC's released in replacement of the coatings are all reasons to allow a higher VOC category for anti-graffiti coatings at 600 grams/liter which is consistent with the federal AIM Rule. In addition, the quantity of these protective coatings is low – less than 500 gallons were sold in California in 2000.

Economic Impact

14-19 Without the use of anti-graffiti coatings, walls are continually recoated to get rid of graffiti painted on the walls. In low-income areas, businesses as well as the government try to make their buildings more aesthetically pleasing. Many towns go to the expense of putting expensive and extremely attractive murals in the lower income areas. Anti-graffiti coatings can be used to protect these murals. The high cost of many water-borne systems makes it impossible for art foundations to afford to use an anti-graffiti coating. The higher VOC anti-graffiti coatings can provide longer term protection than water-borne systems, and they are much more affordable for use in low income areas.

Also, without the use of anti-graffiti coatings, the walls need to be recoated more often. There are businesses in low-income areas that repaint their buildings once a week as a routine maintenance item. The VOC's from this practice far exceed the VOC's of the use of anti-graffiti coating applied once every three to five years.

Inability to Use Averaging

14-20 We are a specialty high performance coating manufacturer and therefore do not manufacture coatings which lend themselves to very low VOC content, e.g., flat interior coatings. We do make every effort to lower the content of our coatings. The averaging provisions can only be effectively used by companies with diverse coating lines and thus penalize a company like Textured Coatings of America, which has devoted its efforts to developing niche market coatings that otherwise would not have been developed, because the volumes are too small to interest large manufacturers with diverse product lines.

Recommendation

14-20 The use of anti-graffiti coatings is typically done in low-income areas, or to protect murals from vandalism. Our anti-graffiti coating is sold for less than half the amount as other water-borne coatings. These waterborne coatings are considered too expensive to be used in most projects. With the extremely low volume used in anti-graffiti coatings, less than 0.01% nationwide, raising the limits to 600 grams/liter would have minimal impact on the total VOC's in the region.

AVERAGING AND VOC LIMITS IN 2005, 2006 and 2008

14-21 Many manufacturers of high performance coatings are specialty manufacturers and therefore do not manufacture coatings that lend themselves to very low VOC content, e.g., flat interior coatings. These manufacturers make every effort to lower the content of their coatings, as evidenced by the use of acrylic and other waterbased technology for specialty coatings. The averaging provisions can only be effectively used by companies with diverse coating lines and thus penalize small companies which devote their efforts to developing niche market coatings that otherwise would not have been developed, because the volumes are too small to interest large manufacturers with diverse product lines. However, even with their larger markets, the new VOC limits for many categories are too restrictive for larger companies to meet the VOC's, even with averaging.

14-22 The impact of this rule would likely force many small manufacturers of coatings to go out of business, and could force another round of plant closings in the Southern California area. The draft subsequent environmental assessment report does not even address the 2008 limits. The data from the draft subsequent environmental assessment report shows that only a small number of coatings, or no coatings are available that meet the 2005 and 2006 limits. These coatings are typically specialty coatings that are not user friendly, or recommended for specific purposes. There is not the technology in place that the 2005 to 2006 year limits can be met without sacrificing the coating's integrity. Our suppliers say the technology to take AIM coatings to these limits is not feasible. With so few coatings available, and the resin suppliers not being able to meet the deadlines, there is no way a coating manufacturer can determine in the short amount of time that a coating will perform for the consumer.

14-23 We respectfully request that you include the sub-category at 600 grams/liter for the Anti-Graffiti Coatings Category in Rule 1113. These are very unique coating categories that will never represent large volume emissions of volatile organic content within your region. In addition, we ask that the definitions be changed for Specialty Primers to include the addition of primers specifically for use on concrete, plaster, wood and other masonry surfaces, where chalky conditions, or where highly alkaline cement, plaster, and other cementitious surfaces may be present.

Please contact me regarding any additional information necessary to have these additions made to Rule 1113. I would appreciate the South Coast Air Quality District informing Textured Coatings of America, Inc. of whether you intend to include these changes in your Rule 1113.

Sincerely,

Eileen Dutton

Eileen Dutton
Senior Chemist

Attachments (5 photos) *

* The attached photos submitted with TEX COTE's comment letter have not been incorporated into Appendix C; however, they are available upon request

ZINSSER
QUALITY SINCE 1849

ZINSSER Co., Inc.
173 Belmont Drive
Somerset, NJ 08875

September 4, 2002

Mr. Michael Krause
CEQA – AIM Coatings Rule
South Coast AQMD
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

RE: SCAQMD's proposed changes for Architectural Coatings

Dear Mr. Krause:

15-1

Please accept the following comments in reference to South Coast Air Quality Management District (SCAQMD) Rule 1113. ZINSSER Co., Inc. is a manufacturer of specialty primers, the mainstays of our business, and we are therefore very interested in these proposed changes and appreciate this additional opportunity to give you our input. We believe the proposed 2003 changes to SCAQMD architectural coatings regulations, with a few changes, can be implemented without drastic negative effect relative to the use of performance primers and our business.

<u>We have four recommendations:</u>

1. First, that the classification for Quick Dry Primer, Sealer and Undercoater be stricken entirely as a Primer category

   – or –

   Specialty Primers be excluded from your 'most restrictive standard' clause (c)(3) as reflected in the CARB recommendation.
2. Second, that the definition of "Specialty Primer" be expanded to include 'extractive bleeding' a problematic condition requiring a Specialty Primer which is common in California due to heavy use of Cedar and Redwood and the high content of tannin's in these woods.
3. Third, that the mandatory label statement for a "Specialty Primer" – "For Fire-, Smoke-, Water-Damaged-, or Excessively Chalky Substrates Only" be superceded by a requirement for prominent display of one or more of the following descriptions as recommended by CARB:
   - For blocking stains – (we recommend replacing 'blocking stains' with extractive bleeding)
   - For fire-damaged substrates
   - For smoke-damaged substrates
   - For water-damaged substrates
   - For excessively chalky substrates
4. Fourth, that the 350 g/L VOC limit for Specialty Primers be maintained beyond 1/1/2003.

These recommendations are based on the following reasons:

15-2

1. <u>The category Quick Dry Primer, Sealer and Undercoater should be eliminated – OR – Specialty Primers be excluded from your 'most restrictive standard' clause (c)(3).</u>
   The presence of the Quick Dry Primer, Sealer and Undercoater category along side the 'most restrictive standard' verbiage (c)(3), mandates a slower dry Specialty Primer than is necessary. Specialty Primers are clearly defined and their intended use is without question, why then not allow for a quick dry time? According to the 'most restrictive standard' verbiage (c)(3), a Specialty Primer that dries to touch in 30 minutes and may be recoated in 2 hours is forced into the Quick Dry Primer, Sealer and Undercoater category pushing the VOC limit down to 200. This unfairly penalizes the marketplace by restricting access to an otherwise compliant product, its only flaw being formulated to dry quickly. In CARB's recommendation, they exempt Specialty Primers from their 'most restrictive standard' clause. Either alteration will allow for a Specialty Primer with quick dry features without compromising your objective.

2. The definition of "Specialty Primer" be expanded to include 'extractive bleeding' a problematic condition requiring a Specialty Primer which is common in California due to heavy use of Cedar and Redwood and the high content of tannin's in these woods.

15-3 A common problem, not unique to California, however more prevalent than many states is extractive bleeding of tannic acids from Cedar and Redwood. Zinsser has low VOC primers that address the issue of extractive bleeding, however, in extreme cases only an oil-base product will sufficiently halt extractive bleeding. Tannins are water-soluble and, when particularly aggressive, can migrate through water-based paints before the paint has a chance to fully dry. The current regulation does not allow for a technologically feasible alternative.

3. The mandatory label statement for a "Specialty Primer" – "For Fire-, Smoke-, Water-Damaged-, or Excessively Chalky Substrates Only" be superceded by a requirement for prominent display of one or more of the following descriptions as recommended by CARB:

- For blocking stains – *(we recommend replacing 'blocking stains' with extractive bleeding)*
- For fire-damaged substrates
- For smoke-damaged substrates
- For water-damaged substrates
- 15-4 For excessively chalky substrates

The mandatory statement is inherently confusing and makes no sense. If products are to be used properly and efficiently, clear labeling of purpose is mandatory. Highlighting specific applications within the confines of the Specialty Primer definition to direct toward intended use is completely acceptable. Forcing a statement that is both restrictive and disjointed does not allow for a clear and compelling position for the use of the product in practical situations. The CARB recommendation has managed to categorically restrict usage and allow for appropriate and compelling product position in the eyes of the consumer, we request you adopt CARB's approach on this point. Two changes worth suggesting: (1) replace 'blocking stains' with 'extractive bleeding' (2) strike 'For excessively chalky substrates' altogether, this is fully achievable with water-base technology, we have two water-base products recommended for this application.

4. The 350 g/L VOC limit for Specialty Primers be maintained beyond 1/1/2003.

As stated in the beginning of this letter "ZINSSER Co., Inc. is a manufacturer of specialty primers, the mainstays of our business…", we are one of two clear leaders in the manufacturing and R&D of specialty
15-5 primers and have outstanding, low VOC, water-based primers. However, we also recognize the unique performance characteristics and practical necessities of oil-base specialty primers, even a low VOC formulation. Shortly below the 350 VOC mark, there comes a point where oil-base options will cease to exist given current and future perspectives on technology. It is possible that a genuine 'full-realm' water-base alternative may become available, if so, we expect to be the company that develops it. But today and for the foreseeable future we cannot identify a 'real world' without a need for an oil-base specialty primer.

We appreciate the opportunity to provide our input on this very important issue. Please let me know if we can be of any assistance or answer any questions regarding our recommendations.

Thank you for your consideration.

Sincerely,

Timothy O'Reilly
Category Manager - Primers

Cc: R. Senior, ZINSSER Co., Inc.
Jim Sell, NPCA

Department of Water and Power the City of Los Angeles

September 6, 2002

Mr. Laki Tisopulos
Assistant Deputy Executive Officer
Planning, Rule Development & Area Sources
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

Dear Mr. Tisopulos:

Subject: Proposed Amendments to Rule 1113 – Architectural Coatings

16-1

The Los Angeles Department of Water & Power (LADWP) appreciates the opportunity to comment on the proposed amendments to Rule 1113. LADWP would like to comment on SCAQMD definition of "Essential Public Service Coating" in the final SCAMQD Board package. The definition is as follows:

> ESSENTIAL PUBLIC SERVICE COATING is a protective (functional) industrial maintenance coating applied to components of transmission or distribution systems of power, municipal wastewater, and water; and bridges and other roadways during repair and maintenance procedures.

This definition excludes protective industrial maintenance coatings applied to components of power generation and water treatment. LADWP owns and operates four power plants and a water treatment facility located within the District that provides power and treated water for a population of 3.7 million people living within 465 square miles. LADWP requests that this definition be revised to reflect power generation and water treatment operations as the 1999 amendments did. This would allow LADWP to provide continuous and effective service to its customers.

If you have any questions or require additional information, please contact Leizl Lontok at (213) 367-3770

Sincerely,

Bruce M. Moore

Bruce M. Moore
Air Quality Supervisor

Water and Power Conservation ...a way of life

111 North Hope Street, Los Angeles, California *Mailing address:* Box 51111, Los Angeles 90051-0100
Telephone: (213) 367-4211 *Cable address:* DEWAPOLA *FAX:* (213) 367-3287

LL

cc: Mark Sedlacek
Timothy Conkin
Leizl Lontok

Henry COMPANY®

5 September 2002

Mr. Laki Tisopoulos
SCAQMD
21865 E. Copley Drive
POB 4932
Diamond Bar, CA 91765-0932

re: Comments on Proposed Rule 1113 Presented on 21 August 2002 with respect to Bituminous primers

Mr. Tisopoulos:

I would like to expand on the testimony hat I gave at the public workshop in August.

We urge you to create a specific "Bituminous Roof Primer" category in Rule 1113, modeled on the CARB SCM, which has the 350 g/l VOC limit specified in the SCM.

17-1 Roofs are dirty, often oily places, and in general can not be adequately cleaned even when new. Instead, many coating products require that new and old roof surfaces be primed with a compatible asphalt primer prior to coating.

Roof priming is generally the first task done in the morning. A workable roof primer must have a low viscosity at cold temperatures so that it will be easy to apply, penetrate and seal porous surfaces and wet out residual dust. It must then dry rapidly to a firm surface compatible with the coatings to be applied.

Under both the May 1999 Rule and the one proposed at the August meeting, the 2002 VOC limit for "Primers" has been set at 200 g/l. Under previous Rules, SCAQMD, like most other Districts in California, had placed a 350 g/l limit on the VOC content of asphaltic primers.

17-2 As I mentioned at the meeting, Henry makes both solvent-borne and water-borne asphalt primers which conform to the 350 g/l requirement. Neither conforms to the industry-standard ASTM D-41 primer; both are slower to dry in cool, damp weather.

Henry has spent a great deal of time in the past 3 years attempting to develop an asphaltic primer – solvent-borne or water-borne – which functions in a real-world roofing environment but has a 200 g/l VOC content. We have failed; we do not know of anyone in the industry who has succeeded.

2911 Slauson Avenue • Huntington Park, CA 90255
(323) 583-5000 • FAX (323) 582-6429 • www.henry.com

17-3 Removing even a small amount of solvent from an existing 350 g/l product creates a material which is essentially rigid at 40 °F. This can not be processed and at common application temperatures, and certainly can not be applied as a solvent-based product. Nor will a water-based product using this base form a film at cooler temperatures, which appears to be essential to adequately prime a roof surface.

Reducing the solvent demand by adding oil to the asphalt, either directly or by using lower grades of asphalt, produces a film that never really sets and is not compatible with many coatings.

Asphalt, by its nature, resists many solvents. The only practical exempt solvent which will cut asphalt is PCBTF, which as you know has a strong toluene / mothball odor which offends many end users. [A representative of the maintenance department for one school district once told us not to bother sending them samples of any primer based on PCBTF.]

17-4 As I stated at the hearing, at the end of this effort, Henry's only possible approach to compliance in July 2002 was to abandon the conventional primer business in the District. Any 350 g/l product made prior to 1 July was sequestered for sale into SCAQMD; when that is gone, we will stop selling those products here.

If you have any questions, please call me at (323) 908-5279.

Paul A Beemer

Paul A. Beemer
Director, Legal & Technical
Henry Company

cc: Mr. David De Boer Mr. Naveen Berry

Henry
COMPANY

27 September 2002

Mr. Laki Tisopoulos
SCAQMD
21865 E. Copley Drive
POB 4932
Diamond Bar, CA 91765-0932

re: Comments on Proposed Rule 11 13 Presented on 24 September 2002

Mr. Tisopoulos:

As I mentioned at the meeting on Tuesday, I was pleased to see that the latest draft Rule II 13 has
19-1 incorporated the SCM definitions for Bituminous Roof Coatings and Bituminous Roof Primers, with the
SCM's recommended VOC **limit** of 350 g/l for the primer.

I would like to request two editorial changes, however:

> Both definitions use the words "exclusively formulated for ... roofing." As I stated at the
> meeting, the basic formulations of some of these products got back 50 years or more, and very
> 19-2 similar materials have historically been used for similar non-roofing applications such as
> dampproofing and waterproofing. Can we remove the word "exclusively" in the formula
> definition?
>
> The vast majority of aluminum-pigmented roof coatings are bituminous products. To complete the new definition of these products, can the new coating type "bituminous roof coating" be added to section c (3)(B) along with regular roof coatings as a special use of metallic pigmented coatings? This -is not a change in the use of the products.

Thank you

If you have any questions, please call me at (323) 908-5279

Paul A. Beemer

Director, Legal & Technical
Henry Company

cc: SCAQMD: Lee Lockie David De Boer Naveen Berry
RCMA: Russ Snyder

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AMERON
INTERNATIONAL

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October 1, 2002

Mr. Michael Krouse
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 E. Copley Drive
Diamond Bar, CA 91765

Dear Mr. Krouse:

Ameron is providing the following comments on the Draft Proposed Amended Rule 11 13 as a follow-up to comments made at the Rule 11 13 Public Consultation meeting of September 24, 2002.

1 Chemical Storage Tank Coatings

1.1 We support the following NPCA definition proposed to you in a letter dated September 4, 2002: Chemical Storage Tank Coatings are coatings used as internal tank linings for the storage of oxygenated solvents, oxygenated solvent mixture or acid based products.

1.2 The rationale for establishing the category and extending the time and level for VOC reduction is that the technology is not yet available to formulate coatings that meet the proposed lower limits and the multi-year testing that must be conducted to commercialize the coatings.

The proposed Amended Rule II 13 restricts the definition of chemical storage tank coatings to oxygenated solvents such as MEK, methanol and MTBE and oxygenated solvent mixtures with greater than 10% by volume of the same solvents. This definition would preclude the use of the category for certain types of solvent blends, e.g., gasoline containing methanol or ethanol.

20-1

1.3 The proposed Amended Rule 11 13 also limits the definition of this category to acid-based products with a pH of less than 3. Establishing a pH requirement for acid-based products would preclude the use of this category for organic acids; e.g., dirner and trimer fatty acids and tall oil fatty acid. These chemicals are extremely aggressive, readily attack most epoxy and phenolic coatings and have a pH above 3. These materials are stored in bulk within the district and are used to make polyamide and polyamido amine epoxy hardeners.

1.4 There are no compliant coatings available for storage of these materials and significant potential risk of tank lining failures exists if lower VOC limits are established.

2. Zinc Rich Coatings

2.1 This category should not be excluded from the Metallic Pigmented Coatings category. Doing so would mean they would fall under the Industrial Maintenance category and be subject to a significant reduction in VOC in 2003. There are few organic zinc-rich coatings available at 250 gli VOC, however, the technology is generally available to develop such products.

2.2 However, there are no solvent-based inorganic zinc-rich coatings on the market to meet 250 gli VOC and there is no known technology capable of developing coatings below 340 g/l. Ethylsilicate and ethylsilicate hydrolyzates are used as the binders for these coatings. They cure by reaction with atmospheric moisture and evolution of ethanol. Since solvent is a by- product of the curing mechanisms, reduction in VOC is not possible.

2.3 The only inorganic zinc rich technology available for 250 g/IVOC is water-based. Water- based inorganic zincs are primarily for shop application and are not suitable for most field maintenance situations. The limitations of this technology include:

poor compatibility and adhesion to existing organic coatings because of their inorganic nature.

20-2 direct to steel application requires very good surface preparation; e.g., sandblasting to near white metal. Sandblasting is often not practical in maintenance situations.

they cannot be brush or roll applied which is required for small areas or where spraying is prohibited.

use is limited to atmospheric exposure and non-aqueous immersion service.

they cannot be used in high condensation areas because they contain constituents that promote osmotic blistering.

they cannot be used in acid immersion because zinc is attacked by acid and they cannot be used in alkali immersion because the silicate binder dissolves.

2.4 Because of the reasons stated above, Ameron regards the exclusion of zinc rich coatings from the Metallic Pigmented Coatings Category as a critical issue. It effectively eliminates what is universally regarded as the most <u>corrosion resistant coatings</u> solvent-based inorganic zinc silicates.

In conclusion, we support the NPCA-recommended changes to the Proposed Amended Rule 11 13 and hope these comment explain our position. If you need additional information or would like to discuss our comments, please do not hesitate to contact us at the phone numbers or e-mail addresses listed below.

Sincerely,

Norm Mowrer

C. Stanley

Norman R. Mowrer
Technical Manager

Christine Stanley
V.P., Technology

copy: Naveen Berry, SCAQMD

norm mowrer(c-Oameron-intl.com 714/529-1951, X-389

ostanley(a-)ameron.com
714/529-1951, X-212

COMMENT LETTER #5 FROM
BENJAMIN MOORE AND COMPANY

(August 21, 2002)

Response to Comment #5-1

The SCAQMD acknowledges your participation in developing the National AIM VOC Rule which regulates the architectural coating industry and your support of the proposals by the National Paint and Coatings Association.

Response to Comment #5-2

Shellac is defined under Rule 1113 as clear or pigmented coatings formulated solely with the resinous secretions of the lac beetle (laccifer lacca), thinned with alcohol, and formulated to dry by evaporation without a chemical reaction. This particular definition predates rule development efforts as far back as 1996 and has never been an issue. Although the commentator believes that this definition should be expanded to “lead to more product choices and lower costs for the consumer” the SCAQMD has substantial data that corroborates the availability and use of adequate lower VOC products with sufficient stain blocking characteristics for use on similar substrates that satisfy consumer needs. The staff report includes a list of primers with a VOC content of ≤ 200 g/l that provide the stain-blocking characteristic. Additionally, as part of the District’s technology assessment, stain-blocking was thoroughly analyzed, and the third-party contractor, KTA TATOR, concluded that compliant stain-blocking primers perform as well as their higher-VOC solvent-based counterparts formulated for stain-blocking characteristics. In any event, the current proposed amendments do not effect shellacs.

COMMENT LETTER #6 FROM SHERWIN WILLIAMS COMPANY

(August 28, 2002)

Response to Comment #6-1

The SCAQMD understands the vast network of the Sherwin-Williams Company and the numerous coatings offered under a variety of well known names. The SCAQMD also recognizes Sherwin-Williams Company as a national and world-wide distributor of coating products and appreciates their input in the District's rule development efforts.

Response to Comment #6-2

The SCAQMD has received and responded to comments as referenced by the Sherwin-Williams Company dated April 15, 1999 and April 23, 1999 and are part of the Administrative Record for the May 14, 1999 amendments.

The SCAQMD believes that the commentator is referencing the Public Workshop held on August 21, 2002 as the "Public Hearing" and recognizes the number of issues brought up at that meeting regarding the proposed amendments.

Response to Comment #6-3

The SCAQMD does not agree with the commentator that "second tier limits will restrict the availability of coatings." The District strongly disagrees that lower-VOC coatings don't last as long as higher-VOC coatings. Since 1999, additional evidence included in the staff report further supports the District's conclusion on performance of lower-VOC products. The District's technology assessment, which included an evaluation of coatings available in 1999 for the specified coating categories, as well as a comprehensive laboratory and field testing evaluation conducted by a third-party contractor, with oversight by the Technical Advisory Committee (TAC), showed availability, commercial acceptance, and performance associated with the low-VOC coatings. As the 1999 staff report concluded, and further corroborated by the real-time exposure studies completed earlier this year, some coatings with VOC levels that would comply with the second-tier perform equally or superior to their higher-VOC counterparts. It is expected that by 2006, additional high-performing industrial maintenance coatings will be available. In addition, manufacturers may continue to make higher VOC coatings available under the averaging provisions of the rule and even under the 'second tier' limits. The District recognizes the commentator as an active member of the TAC, and hopes to continue working with the commentator on future technology assessments. Additional information shows an increase in second-tier compliant products commercially introduced since May 1999. A list of these new products is included in the Staff Report, Appendix C, which lists numerous additional products that comply with the 'second tier' VOC limits.

Response to Comment #6-4

The commentator refers to an alleged lack of performance characteristics in flat and non-flat coatings below 50 g/l. The current proposal includes nonflat coatings only. The VOC limits for flat coatings were adopted in November 1996. Contrary to these statements, the District has identified numerous good coatings in both categories that meet or are less than 50 g/l. Sherwin Williams has manufactured and sold, since 1998, some of these flat and non-flat coatings that comply with the 2006 and 2008 second tier limits, and has introduced additional products over the past two years. Additionally, with some of the additives available, and possibly already used by Sherwin Williams, the freeze thaw issue can be mitigated. The NTS Study evaluated the freeze thaw characteristics of numerous waterborne coatings with VOC ranging from 0 g/l to 250 g/l. The study found that some of these lower VOC products did pass the freeze thaw testing, whereas some formulations did not. Therefore, it is evident that coatings can be formulated to meet low-VOC limits while withstanding freeze-thaw cycles.

Response to Comment #6-5

SCAQMD staff believes that there are sufficient data and technology available to support the future limits. The SCAQMD has repeatedly revisited specific evidence to justify creating additional subcategories of coatings with high VOC limits. When such evidence has been presented and is persuasive, the SCAQMD has allowed for such substitutions. The commentator failed to provide any supporting data to justify why currently available low-VOC coatings would not adequately perform for all the suggested mini categories. In any event, if any unforeseen problems arise, the rule contains a technology assessment one year prior to implementation of the 2006 limits to occur. The District hopes that the commentator will continue to participate in the TAC and work with staff in evaluating performance characteristics of coatings available in 2004/2005. Furthermore, the District, along with efforts underway by the USEPA and CARB, will continue the assessment of reactivity of VOC solvents, as a possible alternative strategy for further reducing ozone formation from VOCs.

Response to Comment #6-6

The interim and final limits adopted by the Governing Board in May 1999, were based on a sound technical assessment, which has been further strengthened by the completion of field testing and the availability of new compliant products. As the commentator is well aware, the field exposure testing results of the NTS Study corroborated the findings of the laboratory testing pertaining to durability of exterior coating systems, including industrial maintenance coatings and nonflats that meet the interim and final limits of the rule. As indicated in the response to Comment #6-5, the technology assessment and reactivity evaluation required by the rule will be carried out and the District will determine whether adjustments to the second tier limits are warranted. Therefore, deletion of the second tier limits is not justified at this time.

Response to Comment #6-7

Language has been modified in Section (c)(4) to address the commentator's concern, and additional language has been added to the rule for the sell-through provision pertaining to coatings included in an Averaging Program.

Response to Comment #6-8

The "Waterproofing Wood Sealer" category and definition has been revised to a "Waterproofing Sealer" category to address the commentator's issues. This is a result of extensive discussions with industry regarding the need for a general waterproofing sealer category, rather than a specific wood and concrete/masonry waterproofing sealer. This revision will allow manufacturers to supply waterproofing sealers for substrates other than wood.

Response to Comment #6-9

The exclusion of zinc rich industrial maintenance coatings from the "Metallic Pigmented Coatings" category is not a significant departure from the May 14, 1999 rule. Subsequent to the May 14, 1999 amendments, numerous questions were raised pertaining to this very issue, and a draft and final rule implementation clarification document was released in November 1999 and January 2000, respectively to the public, including the commentator. The District's technology assessment has indicated the availability of both organic and inorganic zinc-rich industrial maintenance primers. Specifically, The Sherwin-Williams Company markets and sells an organic zinc-rich industrial maintenance primer (Zinc Clad VI) that has a VOC content well below the 250 g/l interim limit for industrial maintenance coatings. This specific product, along with a Sherwin Williams Company's waterborne urethane topcoat, was one of the best performing industrial maintenance coating systems in the laboratory-, accelerated exterior-, and real time-exposure studies conducted by National Technical Systems, and discussed in the original and current staff report. However, as indicated by other commentators, currently there are no NSF/ANSI approved zinc-rich industrial maintenance primers with VOC content of less than 340 g/l. The District's technology assessment has not resulted in finding NSF/ANSI approved zinc-rich industrial maintenance primers with a VOC content less than 250 g/l. Therefore, staff has added a separate category called "Zinc-Rich Industrial Maintenance Primers" and has proposed an interim limit of 340 g/l effective January 1, 2003, with a final proposed VOC limit of 100 g/l, effective July 1, 2006.

Response to Comment #6-10

The District appreciates the information provided by the commentator on the floor coatings, both on VOC content on a regulatory and material basis. The District recognizes that the material VOC for waterborne coatings is lower than the regulatory VOC. However, the VOC limits for all coating categories, with the exception of Low-Solids Coatings, are listed as the regulatory VOC content. As a part of the technology assessment prior to the May 1999 amendments, the staff analyzed numerous floor coatings that comply with both the 100 g/l interim VOC limit, as well as the 50 g/l VOC limit to be implemented in July 2006. Furthermore, the technology assessment completed by KTA TATOR, assessed the performance of both single- and multi-component floor coatings. This analysis indicated that the best performing floor coating was a zero-VOC, two-component coating, and one of the two single component compliant floor coatings performed better than the higher VOC floor coatings for most characteristics, and the other performed worse. Additionally, staff has identified numerous additional single- and multi-component floor coatings that meet the interim VOC limit of 100 g/l as well as the final VOC limit of 50 g/l, and are included in Appendix C of the Staff Report. Based on the District's technology assessment and KTA TATOR's laboratory assessment, the interim VOC limit of 100 g/l and the final VOC limit of 50 g/l are feasible.

Response to Comment #6-11

The Specialty Primers category was proposed and adopted at the public hearing on May 14, 1999 based on comments heard by the Governing Board. The commentator states that the NTS Study results indicated that ALL solvent-based, alkyd primers performed better than ALL waterborne primers included in the assessment. The NTS Study evaluated numerous general primers, sealers, and undercoaters (PSUs) for numerous characteristics, and the results indicated that although solvent-based PSU performed better than waterborne PSUs for stain-blocking, waterborne PSUs performed similar and in some instances better than their the solvent-based counterparts for other characteristics such as film appearance properties, wet and dry film properties, dry times, and freeze thaw resistance. Based on the NTS laboratory results for stain-blocking, the District, along with the TAC, decided to evaluate the stain-blocking aspect under the KTA TATOR assessment. In this study, both latex waterborne and alkyd, solvent-based PSUs marketed as stain-blocking primers were selected for a side-by-side comparison. The results of the KTA TATOR study clearly show that two of the three waterborne stain-blocking primers performed equally to their solvent-based counterparts for stain-blocking, as well as other characteristics. One of the three low-VOC formulations performed worse. Therefore, based on the technology assessment conducted specifically for stain-blocking, staff will not propose modifying the definition of the Specialty Primers. The commentator also indicates that during the May 14, 1999 Governing Board Meeting, staff specifically informed the Governing Board that stain blocking is included in the definition of Specialty Primers. Upon review of the transcript of that hearing, staff only mentions fire damage as a parameter in the definition. Additional review of the commentator's testimony at that hearing indicates that the commentator does not specifically highlight the need for the stain-blocking characteristic, but only a need for specialty primers for wood and chalky substrates.

Response to Comment #6-12

Staff does not believe that Section (c)(3) needs to be expanded to include additional categories, exempting them from the most restrictive limit requirement. Furthermore, the Suggested Control Measure (SCM) has a default limit corresponding with the limits of flat or nonflat coatings, whereas Rule 1113 – Architectural Coatings has a default VOC limit of 250 g/l. The majority of the coating categories added to the SCM are subsets of the Industrial Maintenance Coatings, which also has a proposed interim VOC limit of 250 g/l, to be implemented on January 1, 2004. Therefore, addition of the commentator's proposed categories would be redundant. Furthermore, Comment Letter #5 contains comments that suggest that substitution of low-VOC coatings may occur with higher-VOC products. Substantial commentary on potential substitution was also provided by several commentators during the May 1999 rulemaking period. Staff believes that adding more categories to Section (c)(3) may contribute to potential substitution, and therefore it is not prudent to increase the number of categories to the exemption of the most restrictive limit. In addition, the manufacturer may address any potential overlap concerns by rewording its labels. Nonetheless, in response to the commentator's request, staff has added language to clarify liability to the manufacturer for misuse of a coating by an end-user.

Response to Comment #6-13

Staff would like to thank the commentator for the suggested language for the Sealer category. However, the commentator's proposed language broadens this category to any coating, since the function of paint is to protect the substrate. Staff has proposed alternative language to address the comment, thereby allowing a sealer to be used in the absence of a topcoat. The revised definition is as follows:

> SEALERS are coatings applied to either block materials from penetrating into or leaching out of a substrate, to prevent subsequent coatings from being absorbed by the substrate, or to prevent harm to subsequent coatings by materials in the substrate.

Response to Comment #6-14

The commentator's understanding is correct. Section (c)(2) specifically indicates that Industrial Maintenance Coatings are not for residential use and rust-preventative coatings are not for industrial use. Furthermore, the definition of industrial maintenance coatings specifically prohibit their use in residential areas, and the definition of rust preventative coatings indicate that they are limited to metal surfaces found in residential and commercial uses. This was done primarily in response to concerns expressed by the public pertaining to substitution of one type of product with higher VOC for another lower-VOC product, as well as potential health concerns associated with the spraying of two-component industrial maintenance coatings without proper protective equipment. Therefore, the product should be labeled according to its recommended use. However, based on oral testimony in public meetings, as well as subsequent letters from industry members, and considering the requirements of the CARB SCM, the proposal has been revised to indicate that rust preventative coatings may be used in industrial environments as long as the VOC content of those rust preventative coatings meet the compliance limit for the industrial maintenance coating VOC limit.

Response to Comment #6-15

Staff has reviewed the recommendation made by the commentator and has modified the proposed language to address this concern.

Response to Comment #6-16

Staff agrees with the commentator and has proposed to expand the categories included in the Averaging Compliance Option (ACO). Therefore, staff has added the Specialty Primer category to the ACO. However, Lacquers are not added, since the interim and final limits were adopted in November 1996, and were not part of the ACO at that time.

Response to Comment #6-17

The District thanks the commentator for the detailed review of the Sherwin Williams Company's product line. However, the data included in the Environmental Assessment was extracted from the Sherwin Williams Company's product data sheets. If the Sherwin Williams Company has revised the VOC content information in the latest product data sheets, the District has revised the tables with the latest information, as submitted in the comment letter. Staff has also corrected the table with other issues highlighted by the commentator. The coatings identified by the commentator represent a very small fraction of the coatings included in the original technology assessment. The commentator is referred to the original staff report and SEA that included hundreds of coatings that complied with the interim and final limits for each category. These coatings included in the original staff report were manufactured and sold by numerous manufacturers, in addition to Sherwin Williams Company's. With regards to the High Temperature Industrial Maintenance Coatings, the 1999 Staff Report included a discussion of numerous High-Temperature Industrial Maintenance Coatings that comply with the proposed 420 g/l limit. The information gathered by staff since 1999 includes one additional High-Temperature Coating, which does not limit the whole product line to the one manufacturer. If the commentator does not have the initial staff report, one can obtain it electronically at www.aqmd.gov.

COMMENT LETTER #7 FROM ICI PAINTS

(August 30, 2002)

Response to Comment #7-1

The SCAQMD recognizes the commentators need for consistency from a manufacturer's perspective, however, it must be understood that the need for VOC reductions is greater in the South Coast Air Basin than anywhere in the state or nation.

Response to Comment #7-2

The commentator is correct that the National AIM Rule and other California Air Districts definition for nonflat coatings includes the conjunctive "or" rather than "and". However, the SCAQMD does not agree that their definition should be altered. In order to be considered nonflat, a coating must register a gloss of 5 or greater on a 60-degree meter **and** a gloss of 15 or greater on an 85-degree meter. This has been industry's practice for numerous years.

Response to Comment #7-3

The SCAQMD has listed in its original staff report and Appendix C of the current staff report, numerous two-component, high performance floor coatings and also many acrylic-based, single component, high performing floor coatings with VOC contents below the proposed interim VOC limit of 100 g/l and the final VOC limit of 50 g/l that are available for commercial and industrial use. The availability of 100 g/l is based on numerous studies and actual field evaluation of these low-VOC coatings in applications throughout the SCAQMD. Additionally, the KTA TATOR study evaluated low-VOC floor coatings with their higher-VOC counterparts. The results indicated that the best performing product was a two-component zero-VOC coating, and one of the two low-VOC single-component coatings performed better than the higher-VOC products. This technology assessment shows availability of zero- and low-VOC coatings equal to or superior in performance to the higher-VOC floor coatings.

Response to Comment #7-4

The District's technology assessment has resulted in a comprehensive database of compliant industrial maintenance coatings currently available for a wide variety of uses. Additionally, the NTS Study evaluated numerous industrial maintenance coatings systems formulated with a broad range of resin systems, including zinc-rich primers, epoxy midcoats, and urethane topcoats. Generally, the best performing products in terms of durability were the lower-VOC systems (VOC < 100 g/l). However, the study concluded that the lower VOC products did have slightly inferior application properties. Based on feedback from most manufacturers of industrial maintenance coatings, the interim VOC limit of 250 g/l is feasible. However, based on comments to align the implementation date for the industrial maintenance coating with CARB's SCM, staff is proposing the interim VOC limit of 250 g/l to be implemented on January 1, 2004, thereby aligning the implementation date with the SCM. For those that wish to continue utilizing the previous higher VOC limit in the rule for certain small volume products, the Averaging Compliance Option may be utilized.

COMMENT LETTER #8 FROM TNEMEC COMPANY

(August 30, 2002)

Response to Comment #8-1

Staff recognizes Tnemec as one of the leading manufacturers of industrial maintenance coatings and thanks them for their participation in the rulemaking process.

Response to Comment #8-2

The District staff recognizes the difference between PAR1113 and the National AIM Rule, as well as the SCM. However, based on the need of VOC emission reductions in the South Coast Air Basin, PAR 1113 has a more stringent perspective, and believes that technology for lower-VOC zinc-rich industrial maintenance coatings is available and technically feasible. The original Staff Report and the current Staff Report contain a list of zinc-rich industrial maintenance coatings that meet the proposed interim VOC limit of 340 g/l and the final VOC limit of 100 g/l. The technology assessment has determined that both inorganic and organic zinc-rich industrial maintenance primers are available from numerous manufacturers.

Response to Comment #8-3

The District recognizes the importance of zinc-rich industrial maintenance primers as a major component of corrosion protection practices. Staff agrees that none of the organic and inorganic zinc-rich industrial maintenance primers identified in the technology assessment are NSF/ANSI Standard 61 certified.

Response to Comment #8-4

The Sherwin Williams Company's 1998-1999 Product Catalog and product data sheet for the Zinc Clad VI product indicated a VOC content of 48 g/l. The company's most recent product data sheet for the same product indicates a VOC content of 163 g/l. The District is currently investigating the reason for this significant change in VOC content. This has been revised in our database, and is now in the list of compliant coatings for the interim limit only. However, staff has also identified numerous other waterborne inorganic zinc-rich industrial maintenance primers with VOC content < 250 g/l, as well as <100 g/l. Some of these products were included in the NTS study, which found that the inorganic zinc-rich primers performed well. The commentator is referred to the current staff report for a list of compliant zinc-rich industrial maintenance coatings. However, staff recognizes that the preparation of substrates in the laboratory and field evaluation simulated new construction and not repair and maintenance.

Response to Comment #8-5

Staff disagrees with the commentator that the performance properties of all compliant, low-VOC, zinc-rich industrial maintenance primers should be severely questioned. The District's technology assessment has indicated the availability of both organic and inorganic zinc-rich industrial maintenance primers. Specifically, The Sherwin-Williams Company markets and sells an organic zinc-rich industrial maintenance primer (Zinc Clad VI) that has a VOC content well below the 250 g/l interim limit for industrial maintenance coatings. This specific product, along with a Sherwin Williams Company's waterborne urethane topcoat, was one of the best performing industrial maintenance coating systems in the laboratory-, accelerated exterior-, and real time-exposure studies conducted by National Technical Systems, and discussed in the original and current staff report. The study also evaluated waterborne inorganic zinc-rich primers that performed at an equal level to their higher-VOC, solvent-based counterparts. Staff encourages the commentator to share data from empirical studies conducted by the commentator that refutes the results of the NTS Study.

Response to Comment #8-6

PAR 1113 has been modified to include a new category called zinc-rich industrial maintenance coatings, and an interim limit of 340 g/l limit has been proposed effective January 1, 2003, with a final limit of 100 g/l, effective July 1, 2006.

Response to Comment #8-7

As a part of the technology assessment prior to the May 1999 amendments, staff analyzed numerous of floor coatings that comply with both the 100 g/l interim VOC limit, as well as the 50 g/l VOC limit to be implemented in July 2006. Furthermore, the technology assessment completed by KTA TATOR, assessed the performance of both single- and multi-component floor coatings. This analysis indicated that the best performing floor coating was a two-component zero-VOC, epoxy coating that is rolled or trowled, and one of the two single component compliant floor coatings performed better than the higher VOC floor coatings for most characteristics, and the other performed worse. Additionally, staff has identified numerous additional single- and multi-component floor coatings utilizing a variety of acrylic and urethane chemistries. These products have been added to Appendix C of the current staff report. Based on the District's technology assessment and KTA TATOR's laboratory assessment, the interim VOC limit of 100 g/l and the final VOC limit of 50 g/l are feasible.

Response to Comment #8-8

Staff disagrees with the commentator that technology does not currently exist for formulating urethane floor coatings with good chemical resistance. As indicated in the Response to Comment #8-7, the District's technology assessment indicates availability and widespread use of urethane-based floor coatings with VOC levels below 100 g/l and 50 g/l. These products are specifically recommended for use in aircraft hangars, automotive repair, and other similar uses, and indicate chemical resistance characteristics similar or superior to their higher-VOC counterparts. A list of these products is included in the original Staff Report, and additional information gather after May 1999 is included in the current Staff Report. Staff would like to encourage the commentator to share the empirical data collected, as well encourage them to evaluate the products included in Appendix D to conduct a side-by-side comparison of these products.

Response to Comment #8-9

The commentator's perspective on the Air Products Adura Polyols raw materials and recommended coating formulations has been received. However, documentation provided by Air Products, as well as manufacturers of products using the Adura polyols differs from the commentator's perspective. Their product data sheets and formulation sheets indicate the high performance obtained using the Adura Polyols in coatings. The District recognizes that shelf life of some of the lower-VOC products is not as long as the shelf life of higher-VOC products, but is sufficient to eliminate any stability issues. This aspect was thoroughly analyzed in the NTS Study, which found that the zero- and low-VOC products did not suffer from stability problems. Lastly, manufacturers continue to strongly support the three year sell through provision of the rule instead of the lowering the sell through provision to one year, even as the VOC limits are reduced. This also indicates that stability of lower-VOC coatings is not an issue.

Response to Comment #8-10

Based on the staff's technology assessment, which includes the numerous products available for floor uses and cited in the original and current Staff Reports, as well as the KTA TATOR Study, the proposed interim VOC limit of 100 g/l and final VOC limit of 50 g/l is feasible. The KTA TATOR Study found that the lower-VOC floor coatings included in the study, which meet the interim and final limits, performed better than their higher-VOC counterparts. As indicated above, if the commentator has specific empirical studies illustrating that compliant floor coatings currently available have shorter life span, the District encourages the commentator to share those studies with staff.

Response to Comment #8-11

The commentator provides background on metallic pigmented coatings, and the District agrees with the background. The District believes that zinc-rich industrial maintenance primers do not belong in the metallic pigmented coatings category since its uses are specifically for corrosion protection, and not necessarily aesthetics.

Response to Comment #8-12

The District agrees that Mica is not considered to be a metallic pigment.

Response to Comment #8-13

The District recognizes the uses of mica and the commentator's explanation of metallic pigmented coatings category.

Response to Comment #8-14

Staff agrees with the commentator and has revised the definition of Metallic Pigmented Coatings to include mica in PAR1113, based on discussions with the commentator on specific colors and appearance characteristics that need mica in the formulation.

Response to Comment #8-15

The District's technology assessment has resulted in a comprehensive database of compliant industrial maintenance coatings currently available for a wide variety of uses. Additionally, the NTS Study evaluated numerous industrial maintenance coatings systems formulated with a broad range of resin systems, including zinc-rich primers, epoxy midcoats, and urethane topcoats. Generally, the best performing products in terms of durability were the lower-VOC systems (VOC < 100 g/l).

The Essential Public Service Coatings category was provided with a higher interim VOC limit of 340 g/l in order to provide sufficient time for the providers of essential services to test and update their specifications. The commentator, who supplies coatings to these essential service providers, is well aware of the stringent testing program of these service providers. The testing consists of a two year laboratory assessment, followed by a one year field exposure tests, and then a two year pilot testing phase before these public agencies can incorporate a new coating into their specifications. Private companies have not illustrated the same level of testing required before revising their specifications. However, based on comments received from the industry, staff is proposing to delete the Essential Public Service Coating Category, and extending the implementation date for the Industrial Maintenance Coating Category from the originally proposed January 1, 2003 to January 1, 2004. This revised proposal includes a VOC limit of 250 g/l effective January 1, 2004, which aligns the implementation date with the CARB's SCM. Staff believes this time frame is sufficient for both public agencies and other users, especially when coupled with the sell-through provisions and the Averaging Compliance Option.

Response to Comment #8-16

The Essential Public Service Coating Category has been removed from PAR1113, and the VOC limit for Industrial Maintenance Coatings has been set at 250 g/l VOC limit to be implemented January 1, 2004. MWD has informed the District that they have observed positive trends with their ongoing testing for immersion exposure.

Response to Comment #8-17

The Essential Public Service Report requested by the commentator is currently not available. The study is to be completed in several phases and is designed to test and evaluate VOC compliant coatings necessary for maintenance and new construction projects for agencies essential to the public. Approximately 100 VOC-compliant industrial maintenance coating systems have already been applied and are undergoing environmental testing over a three to four year period.

The first phase of the program consists of evaluating immersion and atmospheric coating systems. The second phase, in addition to atmospheric and immersion coatings includes the technology assessment of chemical containment and roof coating systems. Approximately 90% of the coatings in the second phase are already undergoing environmental testing.

SCAQMD Staff plans to present the results of this study to the industry and the Governing Board upon completion.

Response to Comment #8-18

The Averaging Compliance Option, as well as the proposed VOC limits were previously adopted in May 1999. The industry members have had more than three years to develop, test, and commercialize these products for an interim limit that was implemented in July 2002. Nonetheless, staff is proposing a delay of 18 months for the implementation of the interim VOC limit for industrial maintenance coatings. Therefore, PAR1113 includes an implementation date for industrial maintenance coatings with a VOC limit of 250 g/l, effective January 1, 2004.

Response to Comment #8-19

The District disagrees with the commentator that the 2006 limits should be stricken. The technology assessment conducted in 1998 and 1999 showed the presence of numerous industrial maintenance coating systems that comply with the proposed July 2006 limits. Additionally, the NTS Study clearly showed that some of the best performing industrial maintenance systems were the products that complied with the July 2006 limits. Additional information gathered over the past few months shows availability of numerous additional coatings that comply with the July 2006 limit. The commentator is referred to Appendix C of the Staff Report to see a listing of these products. Therefore, the final limits for July 2006 are feasible and are proposed to remain in the rule.

COMMENT LETTER #9 FROM
ARB

(September 3, 2002)

Response to Comment #9-1

The SCAQMD acknowledges the ARB's receipt of the Draft Rule and recognizes that there are no comments at this time.

COMMENT LETTER #10 FROM ENVIRONMENTAL MEDIATION INC.

(September 3, 2002)

Response to Comment #10-1

The SCAQMD recognizes Environmental Mediation Inc. as a representative of the Dunn-Edwards Corporation and appreciates Dunn-Edwards support of the proposed rule amendments with certain suggested modifications.

Response to Comment #10-2

The SCAQMD agrees with the commentator that for the most part there has not been strong opposition to the California State SCM. One of the main reasons is the fact that many of the issues had already been resolved through the development of Rule 1113 by the SCAQMD. For the most part, the state merely adopted what had already been completed by the SCAQMD. The SCAQMD does not agree with the commentator that by adopting the SCM little is lost by the District. The emission reductions lost are estimated to be about 4 tons per day for the interim limits alone (assuming industrial maintenance coatings will be implemented on January 1, 2004), which are considered significant. The emission reductions lost if the District aligned the entire rule with the SCM would be in excess of 14 tons per day, which would include the elimination of the final limits. The foregone emission reductions would be very significant.

Response to Comment #10-3

1. The commentator is suggesting the elimination of the proposed modification to the definition of Metallic Pigmented Coatings pertaining to the zinc-rich industrial maintenance coatings. The exclusion of zinc rich industrial maintenance coatings from the "Metallic Pigmented Coatings" category is not a significant departure from the May 14, 1999 rule. Subsequent to the May 14, 1999 amendments, numerous questions were raised pertaining to this very issue, and a draft and final rule implementation clarification document was released in November 1999 and January 2000, respectively to the public, including the commentator. The District's technology assessment has indicated the availability of both organic and inorganic zinc-rich industrial maintenance primers. Specifically, The Sherwin-Williams Company markets and sells an organic zinc-rich industrial maintenance primer (Zinc Clad VI) that has a VOC content well below the 250 g/l interim limit for industrial maintenance coatings. This specific product, along with a Sherwin Williams Company's waterborne urethane topcoat, was one of the best performing industrial maintenance coating systems in the laboratory-, accelerated exterior-, and real time-exposure studies conducted by National Technical Systems, and discussed in the original and current staff report. However, as indicated by other commentators, currently there are no NSF/ANSI approved zinc-rich industrial maintenance primers with VOC content of less than 340 g/l. The District's technology assessment has not resulted in finding NSF/ANSI approved zinc-rich industrial maintenance primers with

a VOC content less than 250 g/l. Therefore, staff has added a separate category called "Zinc-Rich Industrial Maintenance Primers" and has proposed an interim limit of 340 g/l effective January 1, 2003, with a final VOC limit of 100 g/l, effective July 1, 2006.

2. The District agrees with the commentator and has revised the proposed language.

3. The District agrees with the commentator and has revised the proposed language.

4. The District agrees with the commentator and has revised the proposed language. Additionally, staff has removed the final proposed limit of 100 g/l for Recycled Coatings, and added definitions of Post-Consumer Coatings and Secondary Coatings categories.

5. The District has revised the language in the Averaging Compliance Option to effectively address this issue.

6. The District agrees with this comment and has revised the sell-through provision, as well as added sell through provision language into the Averaging Compliance Option.

Response to Comment #10-4

The District has previously reviewed the recommendations given by Dunn-Edwards for depicting the data from the KTA-Tator study in the Summary Tables of the report. Staff supports the format included in the KTA TATOR report, and does not agree with the commentator's format for presenting the data. The method for presenting the data was approved by the TAC, and clearly shows the results of the assessment. Further clarification on any portion of the testing may be found in the body of the report.

Response to Comment #10-5

The District disagrees with the commentator that the results of the KTA TATOR study justify the revision of the VOC limits for Floor Coatings and High-Gloss Nonflats to conform with the SCM VOC limits for these categories. Additionally, the results of the study do not warrant the inclusion of stain-blocking primers into the Specialty Primers category. More detailed explanation is included in responses to comments #10-6 to #10-7.

Response to Comment #10-6

The District recognizes the differing VOC limits for Floor Coatings in the SCM and the National AIM rule. However, the District has an additional need for VOC emission reductions than other air districts within California or other States. The District disagrees with the commentator that the tables show that the lower VOC coatings generally perform worse. The testing conducted on each category of coatings was designed to assess the overall performance, and the TAC did not specify that one characteristic was more important than another. Nonetheless, the tables summarize that one of the single-component low-VOC floor coatings (E6) performed better for Shear Adhesion but not for Tensile Adhesion. This same low-VOC coating performed better than its higher-VOC counterpart for more characteristics than not. The only other characteristics that this coating performed worse was Efflorescence Resistance. However, the other single-component low-VOC coating, which performed worse for most characteristics tested, actually performed better for Efflorescence Resistance. As indicated by the commentator, the best performing product in the KTA TATOR assessment was a two-component epoxy coating with a VOC content of 0 g/l. The commentator is correct that an epoxy resin is not designed for exterior uses. In such cases a chemical resistant single- or two-component acrylic or urethane coating can be used to protect the substrate from ultraviolet degradation. Several clear floor coatings that comply with both the interim limit of 100 g/l and the final limit of 50 g/l are listed in Appendix D. The District further disagrees with the commentator that two-component coatings cannot be used by the do-it-yourself market. Over the past several years, numerous products, including but not limited to adhesives, have been commercially available and successfully used by the consumers. Therefore, consumers will be able to use the two-component coatings with a minimal learning curve. Several manufacturers sell their two-component products to untrained painters currently, and have not received any complaints regarding problems with the use. The emission reductions from this category are 0.31 tons per day for the interim limit alone.

Response to Comment #10-7

The District recognizes the differing VOC limits for High-Gloss Nonflat Coatings in the SCM rule. However, the District has an additional need for VOC emission reductions than other air districts within California or other States. One can also reach a conclusion that if a low-VOC product performed better than its higher-VOC counterparts, that the higher VOC product failed. However, this conclusion would be just as inaccurate as the conclusion reached by the commentator. Based on the results of the KTA TATOR Study, the District finds the proposed limit of 150 g/l feasible for High-Gloss Nonflats category. The emission reductions from this category are estimated to be 0.71 tons per day for the interim limit.

Response to Comment #10-8

The District, with oversight by the TAC, decided to evaluate the stain-blocking aspect under the KTA TATOR assessment. In this study, both latex waterborne and alkyd, solvent-based PSUs marketed as stain-blocking primers were selected for a side-by-side comparison. The results of the KTA TATOR study clearly show that two of the three waterborne stain-blocking primers performed equally to their solvent-based counterparts for stain-blocking, as well as other characteristics. One of the three low-VOC formulations performed worse for stain-blocking, but performed equally for all other characteristics. Therefore, based on the technology assessment conducted specifically for stain-blocking, staff will not propose modifying the definition of the Specialty Primers. The commentator also indicates that interior primers should have assessed other staining materials, such as felt-tip pens, wax crayons, lipstick, rust, wood extractives (tannins?), and dyes. The Dunn Edwards representative, who has been an active member of the TAC since its inception, was instrumental in identifying various Dunn Edwards coatings to be included in the assessment, as well as discussing the characteristics that should be analyzed to do a thorough comparison of performance. However, the Dunn Edwards representative on the TAC did not express the need to test for these types of stains for the interior primers during the development of the assessment. These tests, along with the other characteristics evaluated, could have easily been analyzed. The District will work with the commentator to analyze this new issue as a part of future assessments.

Response to Comment #10-9

The residential use restriction was placed in the industrial maintenance coatings category as part of the amendments in May 1999. The prior version of the rule, effective November 8, 1996, did not have the residential use restriction. This restriction was placed in response to comments submitted by industry, including representatives of Dunn Edwards during the public workshop, pertaining to potential substitution of lower-VOC products being substituted with higher VOC products. The restriction limits the use of industrial maintenance coatings with a VOC content of 250 g/l in residential environment, and restricts the use of rust-preventative coatings with a VOC content of 400 g/l in industrial environments. Additionally, the residential use restriction was placed in response to comments pertaining to the potential health impacts associated with the use higher-performing, two-component industrial maintenance coatings containing diisocyanates used in aliphatic urethane systems, especially when sprayed. The comments alleged that the DIY market does not have the proper personal protective equipment to be able to use the industrial maintenance coatings in a safe manner. This is in contrast to other types of two-component coatings that are not sprayed, including two-component epoxy-based floor coatings that are typically rolled or trowled into the substrate. Those comment letters are a part of our administrative record, and staff has not been able to find any information to refute that those issues are not applicable any longer. Therefore, the residential restriction of industrial maintenance coatings is still part of the PAR1113.

Staff does not believe that Section (c)(3) needs to be expanded to include additional categories, exempting them from the most restrictive limit requirement. Furthermore, the

Suggested Control Measure (SCM) has a default limit corresponding with the limits of flat or nonflat coatings. In contrast, Rule 1113 – Architectural Coatings has a default VOC limit of 250 g/l. Majority of the coating categories added to the SCM are subsets of the Industrial Maintenance Coatings Category, which also has a proposed interim VOC limit of 250 g/l. Therefore, addition of the commentator's proposed categories would be redundant..

COMMENT LETTER #11 FROM
THE VALSPAR CORPORATION

(September 3, 2002)

Response to Comment #11-1

The SCAQMD recognizes the commentators support of NPCA's Table of Standards proposed changes for Rule 1113. The SCAQMD is aware of the apparent problem the commentator has with in –can skinning and VOC levels.

Response to Comment #11-2

Although the commenter indicates that their studies have shown a "propensity to form skins in the can" as VOC levels drop below 180-190 g/l, the SCAQMD has not been approached by any other manufacturers with the same problem. The original and current staff reports include numerous high-gloss nonflat coatings with VOC levels less than 150 g/l. Some of these were included in the NTS Study and KTA TATOR Study, which did not find that the lower-VOC nonflats had a propensity to form skins in the can.

Response to Comment #11-3

As indicated in response to Comment #11-2, the SCAQMD understands the problem as mentioned by the commentator; however, since no other manufacturers have expressed similar concerns, this does not appear to be an industry wide problem.

Response to Comment #11-4

Although the SCAQMD understands the commentator's predicament in formulating a compliant product with equal performance, this issue is not widespread and staff does not find it feasible to create another category called NonFlat High Solids..

COMMENT LETTER #12 FROM BEHR PROCESS CORPORATION

(September 3, 2002)

Response to Comment #12-1

The District recognizes the comments submitted pertaining to questions on the KTA TATOR Study.

Response to Comment #12-2

1. In the KTA TATOR study, as well as the SCM, High Gloss NonFlats are defined as coatings with a gloss of no less than 70 on a 60 degree meter. This was the criteria used by the TAC, who had oversight over the coatings selected and used in the assessment.

2. The KTA TATOR results are based on accepted ASTM testing procedures conducted on commercially available coatings. The results of the high-gloss nonflat interior coatings tested showed that two of the three low-VOC coatings performed at an equivalent level to their higher-VOC counterparts for Blocking Resistance at ambient temperature, but not for elevated temperature. In contrast the high-gloss nonflat exterior coatings tested showed that two of the three low-VOC coatings performed at an equivalent level to their higher-VOC counterparts at elevated temperatures, and not for ambient temperature. However, the results show equivalent open time performance for all six of the interior and exterior nonflat coatings. The commentator is expressing his opinion as to how the coatings 'should' have performed, but the results collected from the testing do not agree with the commentator's belief of performance.

3. The coatings included in the assessment were selected by the TAC, which is comprised of representatives from large and small paint manufacturers, contractor, academia, and government. The criterion for selection was its suitability for comparing commercially-available coatings with VOC contents at current levels, and comparing those with commercially-available coatings that comply with future rule limits. Each TAC member had an equal chance for input into the specific coatings selected for testing. Staff agrees that establishing the same minimum standards/criteria of performance in conducting such evaluations would have been highly desirable. Unfortunately, industry members are unable to reach consensus on what those minimum performance standards are. Staff would welcome industry's input on minimum performance standards which could be incorporated in designing technology assessments for the final limits.

Response to Comment #12-3

1. The assessment looked at multiple characteristics important to a manufacturer for different coating categories. A weighting criteria was not placed on the characteristics, since each manufacturer places a different emphasis on specific characteristics. The commentator is correct that two of the three low-VOC floor coatings were worse for pencil hardness, but is incorrect in his assessment for adhesion. For Shear Adhesion, two of the low-VOC products performed better than the higher-VOC floor coatings, but only one performed better for Tensile Adhesion. One cannot conclude from this that all low-VOC coatings lack adhesion . For abrasion resistance, one low-VOC coating performed better and the other performed worse.

2. The two-component coating was included to refute claims that all low-VOC products are inferior when compared to high-VOC, solvent-based coatings. Clearly, the two-component coating was the best performing product. The District disagrees with the commentator that two-component coatings cannot be used by the do-it-yourself market. Over the past several years, numerous multi-component products, including but not limited to adhesives, have been commercially available and successfully used by the consumers. Manufacturers of two-component coatings indicate that untrained painters have applied two-component coatings using a brush or trowel without any problems. Nonetheless, one of the single-component coatings performed better than its higher-VOC solvent-based counterparts for shear adhesion, impact resistance, and pencil hardness, and worse for tensile adhesion and eflourescence. Additionally, staff has found numerous additional single-component floor coatings that comply with the VOC limit of 100 g/l.

3. As described in response to Comment #12-2, #3, the coatings included in the assessment were commercially available solvent-based and low-VOC waterborne coating systems. The assessment was to evaluate the performance on a side-by-side comparison. All coatings selected for inclusion in the assessment were chosen by the TAC, which includes members of the industry that do not support the proposed lower limits. These members of the TAC selected commercially-available, and in their opinion, the best-performing high-VOC coatings to do a side-by-side comparison with lower-VOC coatings. These members of the TAC do not have any incentive to choose the poor-performing products for the assessment. The commentator is reaching unsupported, subjective conclusions for performance of low-VOC coatings.

Response to Comment #12-4

A. Staff disagrees with the commentator. As indicated in the responses above, the District has sufficient empirical data showing that the low-VOC high-gloss nonflats and floor coatings perform just as well, and in some cases, better than their higher VOC counterparts. The commentator is simply stating his opinion, without any support from actual studies. The commentator is referred to the NTS Study and the KTA TATOR Assessment reports for more detailed information.

B. As indicated in responses above, the KTA TATOR Study was designed and overseen by the TAC, which included several members from the industry. Both the low- and higher-VOC products included in the study were chosen based on their commercial acceptance and performance. The commentator does not submit data to support the conclusion that the coatings used in the comparison were not highly rated.

C. This statement is not true. The overall emissions are dependant on the overall VOC in terms of %Volume, as well as the solids content by %Volume. Overall, the hypothetical solvent-based floor coatings with a VOC content of 100 g/l would have very high solids (~80% or greater), and provide much greater coverage than a waterborne coating formulated at a VOC content of 250 g/l.

COMMENT LETTER #13 FROM SMILAND PAINT

(August 30, 2002)

Response to Comment #13-1

The SCAQMD disagrees with the commentator that the NTS and KTA-Tator Reports are "flawed". Both studies were overseen by the TAC, which is comprised of representatives from small manufacturers, large manufacturers, painting contractor, academia, and government. As a member of the TAC, the commentator should know that all members had equal influence in designing the study, coating selection, as well the characteristics assessed using established ASTM test methods. If the commentator has or knows of other sound, unbiased, scientific studies that refute the findings of the NTS and KTA TATOR studies, the District encourages the commentator to share those with staff.

Response to Comment #13-2

The NTS Report has been completed. As mentioned in the report, the laboratory portion of the Phase II Assessment Study of Architectural Coatings was completed by May 1999 and was thoroughly reviewed with the TAC. Following discussions with the TAC it was agreed that additional funding should be raised to conduct further exposure testing. The ARB funded an additional $20,000 towards the assessment of application and durability characteristics of architectural coatings. The scope of the work was limited to the submittal of updates including the list of coatings tested and simple tabulated results of the tests. During the development of the study, the TAC concluded that each manufacturer places emphasis on different characteristics, and the TAC was not able to reach consensus on a weighting criteria. At that time, the TAC deemed it was best to display results of each test conducted for the numerous coating systems under various coating categories, and not reach any conclusions regarding the performance characteristics.

Response to Comment #13-3

As the commentator is well aware, the field (real time and accelerated) exposure testing has been completed, and the results corroborate the results from the laboratory testing. The SCAQMD completed all three phases of the NTS study, which included laboratory testing, accelerated outdoor (field) exposure tests, and the real-time exterior (field) exposure tests. All three phases were conducted with oversight from the Technical Advisory Committee (TAC). The SCAQMD assumes that the commentator is referring to the application coating study discussed as a possible extra study, which industry requested to address its question about the application characteristics of low VOC coatings relative to high VOC coatings. As an active member of the TAC, the commentator is fully aware that the protocol and check lists for the application study could not be completed because the industry and TAC member responsible for organizing a group of qualified painting contractors to conduct the application study was unable to do so. While the SCAQMD is still interested in participating in an application study, such a study would not likely add any important new information on the relative performance characteristics between low VOC and high VOC coatings. As the NTS study has already demonstrated, while low VOC coating may not apply as well as high VOC coatings. Low VOC coatings exhibit excellent durability characteristics which are more important considerations for the use of such coatings as industrial maintenance coatings. More recently, commercial use of low-VOC coatings have expanded even for businesses that are concerned about the aesthetics, an area which better applying coatings outperform in. Thus, large local companies, including studios and amusement parks are using coatings that currently comply with the proposed interim and final limits for most categories. Specifically, Universal Studios has been applying these coatings for studio work for over five years in a variety of ambient conditions. Clearly, aesthetics is extremely important in studio work and Universal would not use these low-VOC products if field application characteristics and subsequent film appearance was inferior to the higher VOC products they used in the past.

Additionally, a large amusement park was constructed using primarily low-VOC paints from a variety of categories. During construction the field application of these coatings resulted in excellent aesthetic properties. Additionally, these products, even after nearly two years of exposure, are exhibiting excellent durability characteristics.

Response to Comment #13-4

The commentator is correct in his statement that the ‘real time’ exterior exposure testing really is an accelerated test of durability, simply by maximizing exposure to ultraviolet light by manipulating the direction and angle of exposure. The term is used, however to differentiate it from the accelerated laboratory testing, as well as the accelerated outdoor testing conducted in Arizona using mirrors to further maximize exposure to ultraviolet light and heat. The application of the coatings and storage of the prepared substrates have been discussed at numerous TAC meetings and working group meetings. The conclusion was that all samples, solvent-based and waterborne coatings, were treated in the same manner, and the results show a relative comparison of performance and not absolute results of performance. The ASTM test method does not prohibit storage of the coated panels prior to exposure.

Response to Comment #13-5

The commentator is correct that the issue to burnishing was discussed. However, the contractor utilized the ASTM test methods for testing and panel evaluation methods to collect the analytical data. The NTS Staff have repeatedly indicated that burnishing or polishing did not take place. The NTS technical staff had simply wiped some dust off when it couldn’t be removed simply with the use of distilled water. The ASTM does not specifically include this step in the protocol.

Response to Comment #13-6

The commentator is expressing his opinion about the overall reporting mechanism. Staff can only guess that the commentator is referring to reporting VOC information as tested vs. as reported by the manufacturer. As the commentator is well aware, the tested VOC information was erratic, and a decision was made to use reported VOC levels as a measure. The TAC supported the process of doing additional testing for VOC prior to releasing the KTA TATOR VOC results. Nonetheless, the District's laboratory conducted its own VOC analysis on many of the coatings included in the assessment and found that the measured VOC data was consistently below the published VOC data. Therefore, the District concludes that actual VOC was at or below the levels reported. This trend of measured VOC being well below the published VOC data has been documented in the past staff report as a part of the field thinning study. It was later discovered that the KTA TATOR had subcontracted the %water analysis, and the subcontractor had erred in the %water analysis portion of the VOC determination method. Therefore, the KTA TATOR "as tested" results are not reliable and cannot be used. The %water values determined by the District's laboratory were found to be significantly different than values determined by the subcontracted laboratory. This issue has been discussed in the TAC meetings and the Working Group meetings. The District invites the commentator to meet with staff to discuss this analysis in more detail.

Response to Comment #13-7

See response to Comment #13-6.

Response to Comment #13-8

In the KTA TATOR study, as well as the SCM, High Gloss NonFlats are defined as coatings with a gloss of no less than 70 on a 60 degree meter. This was the criteria used by the TAC, who had oversight over the coatings selected and used in the assessment. The TAC relied upon gloss values published in the manufacturer's data sheets. The actual measurement for gloss shows that none of the coatings included in the testing, which includes the products with a VOC content less than 150 g/l, as well as more than 150 g/l met the gloss values, including the product manufactured and sold by the commentator's employer, met the gloss levels indicated in the high-gloss nonflat definition. The actual gloss values of waterborne coatings have been an issue within the industry for several years, and prompted the Master Painter's Institute to conduct a special study entitled <u>New MPI gloss levels study 'spotlights' industry problem.</u> This study also concluded that the industry has caused a lot of confusion in their marketing literature by going away from actually reporting gloss levels at both the 60 degree and 85 degree meter. MPI proposed to adopt standardized gloss reporting methods as a resolution to this on-going issue. Additionally, the staff report includes lists of approved products by MPI, including nonflat coatings that meet the high gloss criteria of 70 or greater on a 60 degree meter. This clearly shows that compliant nonflat high gloss coatings are available and meet the MPI standards for performance, including gloss. The commentator is encouraged to review this information available through MPI's website (www.paintinfo.com).

Response to Comment #13-9

The SCAQMD disagrees with the commentator that the KTA-Tator report does not report the facts. The data obtained and reported by KTA-Tator was presented in a manner that was discussed with the Technical Advisory Committee at numerous meetings. The results of the test are included in the body of the report and were in no way altered or influenced by the SCAQMD. The TAC was in agreement with the scope of the testing and had much influence in deciding what coatings were to be tested, how they were to be tested and how the results should be shown in summary tables.

COMMENT LETTER #14 FROM
TEX COTE

(September 4, 2002)

The Society for Protective Coatings has specific guidance on the curing, preparation, and coating of concrete. Listed below are just a few of the excerpts from the guidance that lists the importance of proper curing, surface preparation, and coating methods:

- Concrete shall be allowed to cure for 28 days or until a minimum strength of 300 psi is achieved, and coatings shall not be applied until a test is used to determine the moisture level remaining in concrete. The most common test method is ASTM D 4263, "Standard Method for Indicating Moisture in Concrete by the Plastic Sheet Method." The concrete should only be coated when this shows that there is minimal moisture left in the concrete.

- Concrete and other cementitious surfaces are alkaline, coatings applied directly to them shall be alkali-resistant. Thus, oil-based coatings such as alkyds must never be applied directly to these surfaces. Alkalinity causes drying oils to become saponified and disbanded. If an oil-based coating is desired on cementitious surface, it must be applied over a latex emulsion (waterborne) or another alkali-resistant primer.

- Efflorescence is the result of migrating alkaline products (lime) as concrete cures and moisture migrates to the surface. These alkaline products react with carbon dioxide to deposit fluffy white crystals called efflorescence on the surface. The guidelines specifically indicate that "this loose material should be removed, preferably by dry brushing, before painting the concrete"

- Laitance is formed during working and curing of new concrete, and is usually the result of overworking the mixture, resulting in a powdery surface. Upon fully curing, this is converted into a thin, brittle layer that is poorly bonded. The guidelines specifically indicate that "Like mill scale, it must be removed mechanically before coating, or its later disbondment will damage the coating."

- The placement of concrete is done with only five basic mechanisms. The surface texture and general appearance of placed concrete will vary with the specific method used. Surface hardners may be applied to uncured concrete surface to increase hardness and chemical resistance and to decrease permeability. However, these hardners prevent good adhesion, so the concrete surface must be lightly abrasive-blasted to roughen it before coating application.

- One of the methods for placing concrete is Cast-in-Place, which includes placing the concrete into vertical forms, which is vibrated to reduce the number of air voids. These forms are usually precoated with form release agents for their easy removal from the concrete after it has cured. The guidelines specifically indicate that "residual release agent on the concrete must be removed before it is coated."

SSPC has the above as general guidelines for the coating of concrete regardless if the coating is a low-VOC waterborne or high-VOC solvent-based product. However, the SSPC strongly recommends against the use of oil-based alkyd coatings directly onto the concrete.

During the development of the KTA TATOR Study, the industry members had the opportunity, including representatives of Textured Coatings of America (TAC), to provide additional issues that need to be included as a part of the assessment work. TCA wanted the District's contractor to analyze the effectiveness of primers when coating concrete substrates contaminated with form-release oils. Since the contractor was unable to locate an establish test method or protocol for testing such an unusual practice, the District requested TCA to forward a protocol for conducting such an assessment for subsequent approval by the TAC. However, TCA failed to provide a protocol, and the specific testing was not conducted.

Response to Comment #14-1

The District recognizes TCA as a manufacturer of architectural coatings and their involvement with the NPCA.

Response to Comment #14-2

The commentator is referring to primers that may be used when surface preparation is not conducted, as recommended by NACE or SSPC prior to coating a concrete substrate. This does not justify the need to add additional parameters to the Specialty Primers category. The CARB's SCM also does not include products for blocking odors or efflorescence in their definition of Specialty Primers. The commentator is encouraged to review the definition in the SCM.

Response to Comment #14-3

The District's technology assessment has shown that PSUs with a VOC content less than 200 g/l (ranging from 0 g/l to 200 g/l) are available for a variety of uses, and with proper surface preparation, perform at an equal or superior level than their higher-VOC solvent-based counterparts. The list of these products was included in the original staff report, and an additional list of new products is included in the current staff report. The NTS Study evaluated the PSU for a variety of different characteristics and found that performance was equivalent or superior than higher-VOC counterparts for some of the characteristics. The commentator can formulate low-VOC primers using a broad range of resins or choose to use exempt solvents, whichever is preferred and most cost-effective for his company.

Response to Comment #14-4

The commentator is again referring to not following surface preparation guidelines applicable to low-VOC and high-VOC coatings. The recommendations are to use the products on substrates that have been thoroughly cleaned and free of oils, powdery residue, and other contaminants. For use on concrete, the concrete must be completely cured prior to application of the PSUs .

Response to Comment #14-5

The commentator is again referring to not following surface preparation guidelines published by the manufacturer of low-VOC coatings, as well as recommended practices for surface preparation by SSPC. It is common knowledge that for coating concrete, form release oils should be thoroughly removed and concrete should be fully cured prior to applying subsequent coatings to prevent adhesion problems by latex primers.

Response to Comment #14-6

The commentator is again referring to not following surface preparation guidelines published by the manufacturer of low-VOC coatings, as well as recommended practices for surface preparation by SSPC. Staff's technology assessment has shown that numerous manufacturers have developed low-VOC primers that exhibit good adhesion to properly cured and prepared concrete. This testing was conducted in the NTS Study. The District has included numerous products in their original staff report and current staff report that are below the 200 g/l VOC limit, and exhibit good adhesion characteristics

Response to Comment #14-7

The commentator is again recommending that the VOC limit of primers for concrete be revised based on poor surface preparation techniques. The commentator is referred to responses to Comments #14-2 to #14-7. Additionally, the commentator's description of its in-house testing seems to indicate that the low-VOC primers were used without removing the form-oils or solvent was added to adjust the VOC of the product as supplied, even if the co-solvent in the original formulation was different and optimally added for maximum performance. This is not following the recommended surface preparation practice or application practices of any manufacturer of low-VOC PSUs. One cannot simply add some random solvent to a waterborne coating and expect any type of predictable performance.

Response to Comment #14-8

The NTS Study proved that low-VOC primers adhere very well to properly prepared substrates. The commentator continues to state that the latex primers do not work on improperly prepared substrates. The District in all of its documentation, as well as the manufacturer of low-VOC primers do not claim that the products perform well when a contractor is not following recommended practices for application.

Response to Comment #14-9

The commentator indicates that alkalinity may contribute to excessive chalking. The Specialty Primers Category includes provisions for allowing this category to be used when the primer is designed for conditioning excessively chalky surfaces, having a chalk rating of four or less as determined by ASTM D-4214 – Photographic Reference Standard No. 1 or the Federation of Societies for Coatings Technology "Pictorial Standards for Coatings Defects". In this particular case of excessive chalkiness, the current definition of Specialty Primers will allow the use of a product with a VOC content of up to 350 g/l.

Response to Comment #14-10

The Society for Protective Coatings (SSPC) recommends that concrete should be fully cured prior to subsequent coating. The commentator recommends not following such guidelines and using specialty primers to overcome issues associated with coating of uncured concrete. If the concrete is allowed to fully cure, and prepared for coating (i.e., removing any dirt, oils, residue) as recommended, the problems cited by the commentator would not occur and latex primers perform equally or superior to solvent-based primers in terms of durability. The rate of curing of concrete can vary based on a variety of variables, including temperature, humidity, and the actual composition of the raw materials utilized. The SSPC does not recommend coating of uncured concrete, since that practice may lead to coating failure.

Response to Comment #14-11

The commentator is repeating Comments #14-3 to #14-10, and is referred to responses above.

Response to Comment #14-12

The potential economic hardship to building contractors, owners, and occupants would be minimized if the painting contractor implements SSPC guidelines for curing and preparing concrete prior to coating.

Response to Comment #14-13

The commentator does not list the typical coverage provided by a product with a VOC content of less than 200 g/l. Staff has found that the overall solids by volume content is generally the same for waterborne primers recommended for use on concrete as their solvent-based counterparts. The Environmental Assessment included as part of the Staff Report to the Governing Board analyzes this issue in detail. It resulted in a finding that even under a hypothesis that a waterborne primer provides less coverage, there is still an overall emissions benefit.

Response to Comment #14-14

The staff disagrees with the proposed definition and has concluded that the current proposed definition of the Specialty Primers Definition includes all of the problematic areas where a higher VOC primer is necessary. These specific problem areas are included in the proposed definition.

Response to Comment #14-15

The District recognizes and understands the function of sacrificial and permanent anti-graffiti coatings. The District's technology assessment included a detailed analysis of permanent anti-graffiti coatings with VOC contents of less than 250 g/l. This technology is the same permanent anti-graffiti coating manufactured by the commentator's company. The City of Los Angeles has tested these lower-VOC permanent anti-graffiti coatings and has listed them on their approved list. Therefore, increased VOC emissions as a result of the use of waterborne coatings is not expected, since more frequent recoating would not take place, as would be the case for the use of sacrificial anti-graffiti coatings that have a VOC content of less than 100 g/l, but need to be reapplied more frequently.

Response to Comment #14-16

The Commentator has shared the test results of spray paint and marking pens on TCA's formulation of a waterborne permanent anti-graffiti coating. However, the District technology assessment shows that permanent anti-graffiti coatings with VOC content below 250 g/l are available from several manufacturers currently certified by the City of Los Angeles. These include Rainguard Products Company's VandlGuard with a VOC content of 117 g/l, Monopole, Inc,'s Perma Shield with a VOC content of 30 g/l, and Genesis Coatings, Inc's GCP1000 with a VOC content of 0 g/l. Staff observed the use of the marking pens on coated substrates and their subsequent removal with minimal effort, using a low-VOC remover and a brush. The manufacturer of this product indicates that the subsequent ink or paint is just as easy to remove even if it is allowed to remain on the coating for a long period of time. All of these products are on the City of Los Angeles' approved Anti-Graffiti coatings list.

Response to Comment #14-17

The compliant permanent anti-graffiti coatings listed in Response to Comment #14-16 are all based on high performance urethane systems and are not considered sacrificial coatings. These products are also certified for use by the City of Los Angeles and are commonly used to protect various surfaces, including murals.

Response to Comment #14-18

The District recognizes the low-volume usage of the permanent anti-graffiti coatings, but has also found compliant coatings that perform well for these types of uses. Therefore, the proposed limit of 250 g/l is feasible. TCA may consider the Averaging Compliance Option if they are unable to achieve well performing waterborne formulation for permanent anti-graffiti coatings.

Response to Comment #14-19

The District recognizes the need, function, and significance of permanent anti-graffiti coatings. The commentator assumes that there will be no permanent anti-graffiti coatings available for protection of substrates. This assumption is incorrect since there are numerous permanent anti-graffiti coatings available that meet the proposed VOC limit of 250 g/l and 100 g/l. Please see response to Comment #14-16 for additional discussion of the available, compliant coatings.

Response to Comment #14-20

TCA has a broad range of products that are marketed for a variety of uses, comprising waterborne and solvent-based formulations. The District encourages the commentator to discuss the actual VOC content and volume of sales for its product line with staff and truly assess the viability of the Averaging Compliance Option for TCA. Based on the District's technology assessment, as well as the City of Los Angeles' approved permanent anti-graffiti coatings list, the proposed interim VOC limit of 250 g/l, as well as the final VOC limit of 100 g/l, are feasible.

Response to Comment #14-21

The proposed final limits are feasible and products complying with those limits are commercially available and in use currently. The original staff report and current staff report includes lists of numerous products in all categories that meet the proposed interim and final limits. The performance assessments conducted to date, including the NTS Study and KTA TATOR assessment, show equal, and in some cases, superior performance than their higher VOC counterparts. Therefore, manufacturers will be able to comply even without use of the averaging provision. However, averaging is available for those that wish to use it. Nonetheless, the proposed rule contains provisions for additional technology assessment prior to implementation of the final limits, as well as a commitment to assess reactivity as an alternative ozone control strategy. The District recognizes that the ACO may be more difficult to implement after the final limits are implemented.

Response to Comment #14-22

The original staff report's Socioeconomic Impact Report analyzes the potential costs thoroughly and determines that the PAR1113 is indeed a cost-effective option for achieving the emission reductions. Information collected from manufacturers of low-VOC products since May 1999 on costs associated with lower-VOC coatings shows that the original Socio-Economic Impact Report estimated the costs at a higher level than currently available. The data shows minimal incremental cost of lower-VOC products in the store, as compared to their higher-VOC counterparts.

Response to Comment #14-23

As indicated in several responses above, the proposed interim and final limit for anti-graffiti coatings is technically feasible and cost-effective.

COMMENT LETTER #15 FROM ZINSSER COMPANY, INC.

(September 4, 2002)

Response to Comment #15-1

The SCAQMD has evaluated the four recommendations from the commentator. The District, along with the TAC, evaluated the stain-blocking aspect under the KTA TATOR assessment. In this study, both latex waterborne and alkyd, solvent-based PSUs marketed as stain-blocking primers were selected for a side-by-side comparison. The results of the KTA TATOR study clearly show that two of the three waterborne stain-blocking primers performed equally to their solvent-based counterparts for stain-blocking, as well as other characteristics. One of the three low-VOC formulations performed worse. Therefore, based on the technology assessment conducted specifically for stain-blocking, staff will not propose modifying the definition of the Specialty Primers.

Response to Comment #15-2

Although the commentator makes a valid point, as long as the labeling requirements of the Specialty Primer Category are met, as is the intended use of the product, then the product would fall within the Specialty Primer Category regardless of other characteristics such as dry time. The potential issue addressed by the commentator may occur if the manufacturer continues to market the product as a Quick-Dry Primer, Sealer, Undercoater and not as a Specialty Primer.

This is an exclusive category in which the intended use of the product must be indicated on the containers and must specifically state one or more of the following: for fire-, smoke-, water-damaged, or excessively chalky substrates only regardless of any other characteristic.

Response to Comment #15-3

Although extractive bleeding may be a problematic condition as stated by the commentator, based on various studies and other supportive documentation such as Product Data Sheets and field observations, the SCAQMD is not supportive of its inclusion in this category.

The NTS Study showed that the solvent-based primers performed better for stain-blocking of tannins from exterior wood substrates, as compared to waterborne primers. However, these primers were general primers and not specifically formulated for stain-blocking.

In contrast, the KTA TATOR technology assessment showed that specific waterborne primers listed for stain-blocking selected for the evaluation performed to an equivalent or superior level than the solvent-based solvents. Additionally, the latest MPI approved products list includes numerous stain-blocking primers with a VOC content < than 200 g/l. Disney's California Adventure and Universal Studios use stain-blocking primers with VOC levels significantly lower than 200 g/l/.

Response to Comment #15-4

The SCAQMD agrees with the commentator to a certain extent. Although the rule quotes the language that must be included for Specialty Primers, it can reasonably be interpreted to state that the label must at least state the applicable use that gives it the exemption, not necessarily all categories. The labeling requirement has been revised to reflect this interpretation.

The SCAQMD does not agree to allow blocking stains or extractive bleeding to fall within this category nor is it necessary to drop excessively chalky substrates from the definition.

Response to Comment #15-5

The SCAQMD agrees with the commentator in that this is a special category and has "unique performance characteristics". The current proposed rule allows for this category to maintain the 350 g/l limit until July 1, 2006, three years beyond the commentators stated date of January 1, 2003.

COMMENT LETTER #16 FROM
DEPARTMENT OF WATER AND POWER THE CITY OF LOS ANGELES

(September 6, 2002)

Response to Comment #16-1

The SCAQMD appreciates LADWP's comments on the Essential Public Service Coating Category.

However, based on the proposed extension for implementation date of the industrial maintenance coating category from January 1, 2003 to January 1, 2004, the Essential Public Service Coating Category is proposed for deletion from the earlier proposal. This proposed date aligns the requirements for industrial maintenance coatings with the SCM, allowing even more assurance that users will be comfortable with the compliant coatings, and if there is a special need, averaging will be available to obtain specific coatings.

COMMENT LETTER #17 FROM
HENRY COMPANY

(September 12, 2002)

Response to Comment #17-1

The District has followed the efforts made by the Henry Company in their attempts to reformulate the Bituminous Roof Primers and achieving equivalent performance levels. Since the Henry Company is the primary manufacturer of this type of coating and has not succeeded in reformulating the product, and the District has been unable to identify other Bituminous Roof Primers that exhibit equivalent performance characteristics to their higher-VOC counterparts, the District agrees with the commentator and has created a category for Bituminous Roof Primers with a VOC limit of 350 g/l.

Response to Comment #17-2

See Response to Comment #17-1.

Response to Comment #17-3

See Response to Comment #17-1.

Response to Comment #17-4

See Response to Comment #17-1.

COMMENT LETTER #19 FROM HENRY COMPANY

(September 27, 2002)

Response to Comment #19-1

The District agrees with the commentator and has revised the definitions of Roof Coatings and Bituminous Roof Primers.

Response to Comment #19-2

The District agrees with the commentator and has made the appropriate modification to PAR1113.

**COMMENT LETTER #20 FROM
AMERON INTERNATIONAL**

(October 1, 2002)

Response to Comment #20-1

The District has proposed deletion of the definition for Chemical Storage Tank Coatings Category as originally adopted in the May 14, 1999 amendments. Based on comments received from various members of the industry, the District is revising the implementation date for the 250 g/l interim VOC limit for the Industrial Maintenance Coatings category to January 1, 2004 to align it with the CARB's SCM. The District believes CARB would likely find that the District's rule did not meet the 'all feasible measures" requirement for California it were not as stringent as the SCM. As the commentator is aware, the CARB's SCM, as well as other air districts that have implemented the SCM, do not have a separate category for Chemical Storage Tank Coatings.

Response to Comment #20-2

The District disagrees that all zinc-rich coatings need to be included in the Metallic Pigmented Coatings category. However, the District recognizes the need for a separate category for Zinc-Rich Industrial Maintenance Primers. Therefore, a new category for Zinc-Rich Industrial Maintenance Primers has been added, with a proposed interim VOC limit of 340 g/l, effective January 1, 2003, and a final VOC limit of 100 g/l, effective January 1, 2006.

A P P E N D I X A - CONTINUED

COMMENT LETTERS RECEIVED FOLLOWING OCTOBER 31, 2002 PUBLIC CONSULTATION MEETING AND RESPONSES TO COMMENTS

The AQMD has received an additional 8 letters via e-mail following the October 31, 2002 Public Consultation Meeting. The e-mails and any associated attachments are included in the following pages for review. The numbering is sequential following the last letter received prior to October 31, 2002, beginning with 21 and ending at 28.

COMMENT LETTER #21 FROM
CURTIS COLEMAN REPRESENTING SHERWIN-WILLIAMS COMPANY

From: Curtis Coleman [colemanlaw@palm.net]
Sent: Thursday, October 31, 2002 2:43 PM
To: David De Boer; mkharding@sherwin.com; colemanlaw@earthlink.net
Subject: R1113 Changes

Dave:
In the interest of getting requested changes to you quickly here are some "biggies":

(b)(22): "Formulation data is the actual product recipe which itemizes the ingredients contained in a product and the quantities thereof used by the manufacturer to create the product."

Add to end of paragraph (c)(2):

"No person shall apply or solicit the application within the district of any rust-preventative coating for industrial use unless such rust-preventative coating meets the VOC limit specified in the table of standards for industrial maintenance coatings."

stain blocking should be included in Specialty Primer definition (see 8-28-2002 letter from M Harding)

Reword paragraph (d)(9) to limit liability to improper use by applicator

include additions to exceptions to most restrictive limit provisions (paragraph (c)(3),(see 8-28 letter)

IM coatings should NOT exclude floors

(b)(25) last paragraph, amend to read:

"Effective January 1, 2003, Industrial Maintenance Coatings are not for use in areas not exposed to such extreme environmental conditions."

AQMD RESPONSE

The SCAQMD recognizes Mr. Coleman as a representative of the Sherwin-Williams Company and appreciates his prompt response following the Public Consultation Meeting held on October 31, 2002.

The SCAQMD agrees with the language for "formulation data" suggested by the commentator, and the rule has been revised to reflect the new definition under section (b)(19).

The SCAQMD agrees with the commentator and has included language in section (c)(2) of the rule indicating that rust preventative coatings may be used in an industrial application as long as it complies with the Industrial Maintenance Coating VOC limit specified in the Table of Standards.

The SCAQMD disagrees that stain blocking should be included in the Specialty Primer definition. Based on a technology assessment conducted, specifically for stain-blocking, staff will not propose modifying the definition of the Specialty Primers. The commentator is referred to the response given to comment letter #6-11 previously received from Sherwin-Williams for additional details.

The commentators suggested rewording of section (d)(9) to limit the liability of improper use by an applicator has been partially incorporated into the rule language as follows:

"A manufacturer, distributor, or seller of a coating meeting the requirements of this rule, who supplies that coating to a person who applies it in a non-compliant manner, shall not be liable for that non-compliant use, unless the manufacturer, distributor, or seller knows that the supplied coating would be used in a non-compliant manner."

The SCAQMD disagrees with the commentator to include additions to the most restrictive limit provisions provided in section (c)(3). The commentator is referred to the response given to comment letter #6-12 previously received from Sherwin-Williams for additional details.

The commentator's suggestion to not exclude floors from the Industrial Maintenance Coating Category has been incorporated into the rule language section (b)24)by the SCAQMD as follows:

"Industrial Maintenance Coatings are coatings, including primers, sealers, undercoaters, intermediate coatings and topcoats, formulated for or applied to substrates, including floors, that are exposed to one or more of the following extreme environmental conditions:…"

Finally, the commentator's suggestion to amend the definition for Industrial Maintenance Coatings to indicate they are not for use in areas not exposed to such extreme environmental conditions would essentially allow their use in residential areas so long as those areas were exposed to extreme environmental conditions. The SCAQMD disagrees, as this position was primarily in response to concerns expressed by the public pertaining to substitution of one type of product with higher VOC for another lower-VOC product, as well as potential health concerns. Again the commentator is referred to the response given to comment letter #6-14 previously received from Sherwin-Williams for additional details.

COMMENT LETTER #22 FROM
LACSD

From: Preeti Ghuman [pghuman@lacsd.org]
Sent: Thursday, October 31, 2002 3:48 PM
To: Laki Tisopulos; Naveen Berry; David De Boer
Cc: 'gadams@lacsd.org'; Carol Kaufman (E-mail)
Subject: Comments to PAR 1113

Hi Laki and Naveen,

Thank you for the opportunity to comment on the revisions to PAR 1113 dated December 6, 2002 emailed to the Rule 1113 working group on October 30, 2002.

A last minute change in the document concerns LACSD. We oppose the exclusion of floors from the industrial maintenance category. Floors, walkways and stairwells at wastewater treatment facilities are exposed to extreme environmental conditions pursuant to the industrial maintenance coating category requirements. These surfaces are subject to splash and immersion in wastewater, washwater and chemicals, as well as, constant exposure to a corrosive environment. We also coat our chemical secondary containment floors for protection.

We utilize epoxy coatings to protect the concrete. Sand is added to the coating for skid resistance. On walking surfaces we allow the epoxy to chalk; a topcoat would reduce the skid resistance causing a safety concern.

In harsh environments, such as our wastewater treatment facilities, high performance coatings are a necessity. We appreciate your consideration of this issue.

Preeti Ghuman

AQMD RESPONSE

The SCAQMD agrees with the commentator that floors exposed to extreme environmental conditions should not be excluded from the definition of Industrial Maintenance Coatings and has incorporated language into the rule section (b)24)as follows:

"Industrial Maintenance Coatings are coatings, including primers, sealers, undercoaters, intermediate coatings and topcoats, formulated for or applied to substrates, including floors, that are exposed to one or more of the following extreme environmental conditions:…"

COMMENT LETTER #23 FROM BENTANIX COATINGS

From: ARKOIAN@aol.com
Sent: Thursday, October 31, 2002 4:29 PM
To: Naveen Berry
Cc: Lee Lockie; David De Boer
Subject: Definition (b) (18) FIRE-RETARDANT COATINGS & ASTM E-84

Naveen Barry,

Per our discussion at today's Public Consultation Meeting, on PAR 1113 the suggested definition (b) (18) FIRE-RETARDANT COATINGS, please remove the exclusive Underwriters Laboratories listing requirement.

In its place I would recommend the use of a generic definition such as "...coatings that pass the ASTM E-84 "Standard Method of Test for Surface Burning Characteristics of building Materials" with a flame-spread index of less than 25 and listed by other laboratories that perform ASTM E-84 tests approved and certified by "ICBO", "BOCA", and "SBCCA" for the use of this test method, i.e. SGS U.S. Testing Company Inc., Intertek Testing Services NA Inc. as well as Underwriters Laboratories."

[(b) (17) has the same language regarding the exclusive Underwriters Laboratories listing requirement.]

Thank you very much for your consideration.

Respectfully,

Norair Arkoian,
Vice President
Betanix Coatings, Inc.
620 Lamar Street
Los Angeles, CA 90031
Tel. (323) 342-0900
Fax (323) 342-0700
E-mail: narkoian@betanixcoatings.com

AQMD RESPONSE

The SCAQMD agrees with the commentator and has added language to the definition of FIRE-RETARDANT COATINGS in section (b)(16) to allow for fire testing and rating by a testing agency approved by building code officials. Additionally, the fire-retardant coating shall be tested in accordance with ASTM Test Method E 84-99, incorporated by reference in paragraph (e)(4) or listed by Underwriter's Laboratories, Inc. as fire-retardant coatings with a flame spread index of less than 25.

**COMMENT LETTER #24 FROM
DUNN-EDWARDS**

From: Robert Wendoll [rwendoll@dunn-edwards.net]
Sent: Friday, November 01, 2002 5:42 PM
To: Laki Tisopulos
Cc: Lee Lockie; Naveen Berry; David De Boer; Dan Russell;
howard@emiworld.com
Subject: Comments on Rule 1113

Hello, Laki --

Attached are the written comments you requested. Please let me know if you need anything more.

RW

Dunn-Edwards PAINTS®
THE PAINT THAT PROTECTS.™

November 1, 2002

Dr. Laki Tisopulos
Assistant Deputy Executive Officer
Planning, Rule Development & Area Sources
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 East Copley Drive
Diamond Bar, CA 91765

RE: PROPOSED AMENDED RULE 1113: ARCHITECTURAL COATINGS

Dear Laki:

Thank you for a productive Public Consultation Meeting yesterday. As you requested, this letter is to summarize the comments presented yesterday on behalf of Dunn-Edwards Corporation regarding the latest version of proposed amended Rule 1113. For ease of reference and interpretation, comments given below will first identify the rule section commented upon, followed by our analysis and recommendation.

(b) Definitions

In general, the definitions of coating categories are inconsistent in their format. About half the categories are defined in terms of what a coating is formulated or intended to do. This is similar to the format employed in the ARB Suggested Control Measure ("SCM") for Architectural Coatings (where coatings are categorized in terms of being "labeled and formulated for application to…"), and in the U.S. EPA National Volatile Organic Compound Emission Standards ("National Rule") for Architectural Coatings (where coatings are categorized in terms of being "formulated and recommended for application to…"). This kind of format makes the categorization of any coating dependent upon the manufacturer, who is responsible for formulating, labeling, and making appropriate recommendations as to end use. Rule 1113 definitions of this kind include the following:

(b)(4) BELOW-GROUND WOOD PRESERVATIVES…formulated to protect….
(b)(10) CLEAR BRUSHING LACQUERS…formulated…to provide…
(b)(15) DRY-FOG COATINGS…formulated only for spray application…
(b)(17) FIRE-PROOFING EXTERIOR COATINGS…formulated to protect…
(b)(23) GRAPHIC ARTS COATINGS…formulated for hand application…
(b)(27) LACQUERS…formulated to dry by evaporation…
(b)(30) MASTIC COATINGS…formulated to cover holes…
(b)(37) QUICK-DRY ENAMELS…capable of being applied…

(b)(38) QUICK-DRY PRIMERS, SEALERS & UNDERCOATERS…intended to be applied…
(b)(41) ROOF COATINGS…formulated for application to…
(b)(42) RUST PREVENTATIVE COATINGS…formulated for use in preventing…
(b)(46) SHELLACS…formulated solely with…, and formulated to dry by evaporation…
(b)(49) STAINS…formulated to change the color…
(b)(55) VARNISHES…formulated with various resins to dry by chemical reaction…
(b)(57) WATERPROOFING SEALERS…formulated for the sole purpose of preventing…
(b)(58) WATERPROOFING CONCRETE/MASONRY SEALERS…formulated for sealing…
(b)(59) WOOD PRESERVATIVES…formulated to protect…
(b)(60) ZINC-RICH INDUSTRIAL MAINTENANCE PRIMERS…formulated to contain…

In contrast, other definitions are given in a form that categorizes coatings "after the fact" in terms of having been "applied to" something, regardless of how the coatings were formulated, labeled, and recommended. This has the effect of creating unintended liabilities for manufacturers and distributors, based on the actions of end-users. This is both illogical and unfair. Categories defined in this manner include the following:

(b)(3) ARCHITECTURAL COATINGS…applied to…
(b)(7) BITUMINOUS ROOF PRIMERS…formulated for or applied to…
(b)(8) BOND BREAKERS…formulated for or applied between…
(b)(9) CHEMICAL STORAGE TANK COATINGS…formulated for or applied to…
(b)(11) CLEAR WOOD FINISHES…applied to…
(b)(12) COATING…applied to…
(b)(14) CONCRETE CURING COMPOUNDS…formulated for or applied to…
(b)(20) FLOOR COATINGS…formulated for or applied to…
(b)(24) HIGH-TEMPERATURE I/M COATINGS…formulated for or applied to…
(b)(25) INDUSTRIAL MAINTENANCE COATINGS…formulated for or applied to…
(b)(29) MAGNESITE CEMENT COATINGS…formulated for or applied to…
(b)(32) MULTI-COLOR COATINGS…applied in a single coat…
(b)(35) PRE-TREATMENT WASH PRIMERS…applied directly to…
(b)(36) PRIMERS…applied to…
(b)(43) SANDING SEALERS…formulated for or applied to…
(b)(44) SEALERS…applied to…
(b)(48) SPECIALTY PRIMERS…formulated for or applied to…
(b)(50) SWIMMING POOL COATINGS…formulated for or applied to…
(b)(51) SWIMMING POOL REPAIR COATINGS…used for…
(b)(53) TRAFFIC COATINGS…formulated for or applied to…
(b)(54) UNDERCOATERS…formulated for or applied to…

A new paragraph (d)(9) has been proposed to address the issue of unintended liability for manufacturers, distributors, and sellers, although it falls short by qualifying the disclaimer of liability with the phrase "unless the manufacturer, distributor, or seller knows or should have known" about the non-compliant use of a coating. This only adds ambiguity to the illogic and unfairness of the situation, by raising a host of new questions as to what was known or should

have been known. A rule that is ambiguous, illogical, and unfair creates confusion, resentment, and disrespect for the rule and for rulemaking in general, and may promote willful or negligent non-compliance.

RECOMMENDATION: Write all definitions in a single format that parallels the format of definitions given in the SCM or National Rule. Delete new paragraph (d)(9).

(b)(25) INDUSTRIAL MAINTENANCE COATINGS

The definition for this category has been modified to exclude floors from the substrates to which Industrial Maintenance Coatings may be applied under specified exposure conditions. This makes no sense because typical applications at industrial facilities will include all surfaces exposed to the same conditions, including walls, ceiling, floors, structural components, equipment, and appurtenances such as stairways, ladders, catwalks, and other horizontal surfaces that are walked upon and may be considered a component of flooring.

RECOMMENDATION: Remove the phrase “excluding floors” from the definition of Industrial Maintenance Coatings.

(b)(25) and (c)(2)

A paragraph added at the end of definition (b)(25) states that “Industrial Maintenance Coatings are not for residential use….” This is an artifact of the 1989 ARB SCM, proposed at a time when Industrial Maintenance Coatings had, and were expected to continue having, higher VOC content than allowed in many alternative categories that could be substituted for Industrial Maintenance Coatings under certain conditions. With the proposed lowering of the applicable VOC limit to 250 g/L, the 2000 ARB SCM deleted this paragraph, since it would have the effect of preventing the substitution of lower VOC Industrial Maintenance Coatings in place of higher VOC alternatives in other categories (for example, Rust Preventative Coatings). Under certain exposure conditions that allow the use of Industrial Maintenance Coatings (such as exterior exposure of metal), an Industrial Maintenance Coating may be an adequate substitute for a Rust Preventative Coating, which is allowed a VOC content of 400 g/L. Obviously, such a substitution would provide emission reduction benefits, without any adverse health impacts since Industrial Maintenance Coatings are, as indicated on the label, “For Professional Use Only,” and professionals are trained in the safe use of such materials.

A more valid concern, as expressed in the 2000 ARB SCM, is to ensure that Rust Preventative Coatings are not substituted for Industrial Maintenance Coatings, unless a particular Rust Preventative Coating happens to meet the VOC limit for Industrial Maintenance Coatings. The sentence added at the end of paragraph (c)(2) attempts to address this concern, but is inadequate. A better solution is given in the SCM, which has been adopted in every other major air district in California. Clarity and consistency of definitions and requirements will promote understanding and acceptance of the rules, resulting in higher rates of voluntary compliance and uniform enforcement policies.

RECOMMENDATION: Delete the paragraph at the end of the definition of Industrial Maintenance Coatings, and the sentence at the end of paragraph (c)(2). Adopt the 2000 ARB SCM definitions for “Rust Preventative Coatings” and “Nonindustrial Use,” and add a requirement like that given in section 3.6 of the SCM: “Effective January 1, 2004, no person shall apply or solicit the application of any rust preventative coating for industrial use, unless such a rust preventative coating complies with the industrial maintenance coating VOC limit specified in Table 1.”

(b)(31) METALLIC PIGMENTED COATINGS

A sentence has been added to this definition, indicating that "Coatings containing zinc are not considered metallic pigmented coatings." Since any metallic pigment may contain trace amounts of zinc, a better way to exclude zinc-pigmented coatings from this category would be to qualify "elemental metallic pigment" as excluding zinc, for purposes of calculating the weight of such pigment per volume of coating. We still take issue, however, with the practice of constructing categorical definitions that are inconsistent with all other regulations for architectural coatings – which the exclusion of zinc-pigmented coatings from this category would do.

RECOMMENDATION: Delete the exclusion of zinc-pigmented coatings from the Metallic Pigmented Coatings category. Alternatively, revise the definition to state that "Metallic Pigmented Coatings are coatings containing at least 0.4 pounds of elemental metallic pigment (excluding zinc) or mica particles, or any combination of metallic pigments and mica particles, per gallon of coating as applied."

(b)(48) SPECIALTY PRIMERS, and (d)(6) LABELING OF SPECIALTY PRIMERS

As currently defined, this category is for primers used to seal fire-, smoke-, or water-damaged substrates, or to condition chalky surfaces; such products must be labeled accordingly. A similar category for Specialty Primers, Sealers & Undercoaters exists in the SCM. The SCM category, however, is defined to explicitly include coatings formulated "to block stains," because not all stains are associated with fire-, smoke-, or water-damaged substrates. Some difficult staining materials – such as felt-tip pens, wax crayons, lipstick, rust, wood extractives, and dyes – will bleed through or resist several coats of conventional primers and topcoats.

RECOMMENDATION: Revise the definition of this category to add the phrase "or to block stains." Also revise the labeling requirement to include that phrase, consistent with the SCM.

(c)(2) TABLE OF STANDARDS

The Floor Coatings category is assigned a VOC content limit of 100 g/L effective January 1, 2003, dropping to 50 g/L on July 1, 2006. The SCM has a single limit of 250 g/L effective January 1, 2003. The National Rule assigns a limit of 400 g/L. Test results – including the KTA-Tator Study commissioned by the District – show that Floor Coatings meeting the 100 g/L limit generally perform worse than higher VOC products in key characteristics such as adhesion and effluorescence resistance. The best performing lower VOC products are two-component epoxies, which are unsuitable for exterior use because of epoxy susceptibility to ultraviolet degradation. Such products are also unsuitable for use by homeowners and general consumers because of the technical requirements of handling a catalyzed coating with a short "pot life" of only two hours under normal conditions, and dramatically less at temperatures above 77 degrees Fahrenheit. Any mixed coating material left at the end of its pot life will harden into an unusable mass, including any material still in application equipment.

RECOMMENDATION: Revise the Table of Standards to include a VOC content limit of 250 g/L for Floor Coatings, with no future-effective lower limit, consistent with the SCM.

(c)(3) "MOST RESTRICTIVE LIMIT" CLAUSE

The current list of categories exempt from operation of the "most restrictive limit" clause is inadequate to cover all the overlaps in definitions that may subject a category to the lower limit of another category, despite intended and appropriate uses of the higher VOC category as defined. For example, the list does not currently include Industrial Maintenance Coatings, which are defined specifically as "including primers, sealers, undercoaters, intermediate coatings, and topcoats." Without being exempt from the "most restrictive limit clause," any Industrial Maintenance Primer is technically subject to the limit for general Primers, Sealers & Undercoaters. Clearly, this is not what is intended.

RECOMMENDATION: Revise the list of categories exempt from operation of the "most restrictive limit" clause to include the 15 categories listed in section 3.2 of the SCM, and also add Rust Preventative Coatings (which may be either primers or topcoats).

(c)(4) and APPENDIX A, SECTION (K) "SELL-THROUGH" PROVISIONS

The standard "sell-through" provision, as currently worded, would impose a three-year window on the sale of all coatings manufactured before the effective date of a change in the applicable VOC limit, even if a coating complies with the new limit. This is surely an oversight. Also, both the standard "sell-through" and the averaging program "sell-through" would likewise impose a three-year window on the use of products under specified conditions. This would force the unnecessary generation of liquid wastes from coatings sill in usable condition. Recycling would apparently not be allowed, since any VOC content in the products would still be emitted from the recycled product. Moreover, the waste management hierarchy assigns higher value to "reuse" over "recycle" as options for dealing with unwanted materials. The "sell-through" provisions of the SCM allow coatings to be "applied at any time, both before and after the specified effective date, so long as the coating complied with the standards in effect at the time the coating was manufactured," or, for coatings included in an approved averaging program, "such a coating may be applied at any time, both during and after the compliance period."

RECOMMENDATION: Revise the "sell-through" provisions as follows:

(c)(4): "Any coating that is manufactured prior to the effective date of the applicable limit specified in the Table of Standards, and that has a VOC content above the limit (but not above the limit in effect on the date of manufacture), may be sold, supplied, or offered for sale for up to three years after the specified effective date. In addition, such coating may be applied at any time, both before and after the specified effective date."

Appendix A, Section (K): "Any coating that is included in an approved averaging program, and that has a VOC content above the applicable limit specified in the Table of Standards, may be sold, supplied, or offered for sale for up to three years after the end of the compliance period specified in the approved averaging program. In addition, such coating may be applied at any time, both during and after the specified compliance period."

Thank you for the opportunity to provide these comment for your consideration in further revising the latest draft proposed amended Rule 1113. If you have any questions regarding these comments, or need any further information, please feel free to call me at (323) 826-2663.

Very truly yours,

DUNN-EDWARDS CORPORATION

Robert Wendoll
Director of Environmental Affairs

cc: Lee Lockie
Naveen Berry
Dave DeBoer
Dan Russell
Howard Berman

AQMD RESPONSE

The SCAQMD agrees with the commentators perspective that the Public Consultation Meeting held on October 31, 2002 was productive, and appreciates Dunn-Edwards prompt response in summarizing their comments presented at the meeting.

To respond to the commentators concern that word structure in definitions of coating categories creates “unintended liabilities for manufacturers and distributors, based on the action of end-users”, the SCAQMD has proposed language in section (d)(9) to further clarify the manufacturer’s liability issue. The SCAQMD has agreed to strike the phrase “should have known” with the proposed language now reading as follows:

“A manufacturer, distributor, or seller of a coating meeting the requirements of this rule, who supplies that coating to a person who applies it in a non-compliant manner, shall not be liable for that non-compliant use, unless the manufacturer, distributor, or seller knows that the supplied coating would be used in a non-compliant manner.” The SCAQMD disagrees with the commentator that all definitions should be written in a single format that parallels definitions in the CARBs SCM or the National AIM Rule.

The commentator’s suggestion for the removal of the exclusion of floors from the Industrial Maintenance Coating Category is recognized. The SCAQMD agrees with the commentator that floors should not be excluded from the definition of Industrial Maintenance Coatings and has incorporated language into the rule section (b)24)as follows:

“Industrial Maintenance Coatings are coatings, including primers, sealers, undercoaters, intermediate coatings and topcoats, formulated for or applied to substrates, including floors, that are exposed to one or more of the following extreme environmental conditions:…”

The SCAQMD does not agree with the commentator that an Industrial Maintenance Coating should be allowed as a substitute for a Rust Preventative Coating due in part to potential health concerns. However, the SCAQMD has recognized and agrees with the commentator that a Rust Preventative Coating should be allowed for application in an industrial setting and has included language in section (c)(2) of the rule indicating that rust preventative coatings may be used in an industrial application as long as it complies with the Industrial Maintenance Coating VOC limit specified in the Table of Standards.

The SCAQMD has recognized the need to further clarify the Metallic Pigmented Coating Category as suggested by the commentator and has proposed the following modified definition to satisfy comments received: “METALLIC PIGMENTED COATINGS are coatings containing at least 0.4 pounds per gallon (48 grams/liter) of coating as applied of elemental metallic pigment (excluding zinc), mica particles or any combination of metallic pigments and mica particles.”

The SCAQMD disagrees with the commentator’s suggestion to include stain blocking under the Specialty Primers Coating Category. The commentator is refereed to the response given to comment letter #10-8 previously received from Environmental Mediation Inc.

The SCAQMD disagrees with the commentator that the Floor Coating Category should have a revised VOC limit of 250 g/l based on test results. The District recognizes the differing VOC limits for Floor Coatings in the SCM and the National AIM rule. However, the District has an additional need for VOC emission reductions than other air districts within California or other States. The commentator is referred to the response given to comment letter #10-6 previously received from Environmental Mediation Inc.

The SCAQMD disagrees with the commentator to revise the list of categories exempt from operation for the most restrictive limit clause to include the 15 categories in the CARB SCM. Staff believes that adding more categories to Section (c)(3) may contribute to potential substitution, and therefore it is not prudent to increase the number of categories to the exemption of the most restrictive limit. The commentator is referred to the response given to comment letter #6-12 previously received from Sherwin-Williams for additional details.

The SCAQMD does not agree with the commentator to revise the sell-through provisions in the rule to allow for the application of coatings at any time. The commentator's suggested language would not be consistent with required enforceability of the rule on an end user, manufacture or distributor.

COMMENT LETTER #25 FROM
NPCA

From: Bob Nelson [BNelson@paint.org]
Sent: Monday, November 04, 2002 11:13 AM
To: Laki Tisopulos
Cc: Dan Russell; David De Boer; Lee Lockie; Naveen Berry; Jim Sell
Subject: Comments on PAR 1113

Attached is a letter documenting the NPCA comments that were raised at the Public Consultation Meeting held on October 31, 2002.

If you have any questions concerning these comments, please do not hesitate to call me at 202-462-6272.

Sincerely,

Bob Nelson
Senior Director, Environmental Affairs
National Paint and Coatings Association
1500 Rhode Island Ave. NW
Washington, DC 20005
202-462-6272
202-462-8549 (fax)
bnelson@paint.org

<<Nov 4 comments on PAR 1113.doc>>

November 4, 2002

Dr. Laki Tisopulos
Assistant Deputy Executive Officer
Planning, Rule Development & Area Sources
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA 91765

RE: Proposed Amended Rule 1113: Architectural Coatings

Dear Laki:

The National Paint and Coatings Association would like to document the Association's position on a number of recommended changes to the proposed revision of Rule 1113 that were discussed at the Public Consultation Meeting on October 31, 2002.

(b)(25) INDUSTRIAL MAINTENANCE COATINGS

The proposed definition in the October 30, 2002 version of the PAR for Rule 1113 now excludes floors as a substrate on which Industrial Maintenance Coating may be applied even if the specified exposure conditions are met. As pointed out at the meeting, this does not reflect the real world application of industrial maintenance coatings where these coatings are necessary for use on all surfaces; walls, floors, catwalks, ladders gangways and other horizontal surfaces that are exposed to same extreme environmental conditions.

Recommendation: Eliminate the phase "excluding floors" from the definition of Industrial Maintenance Coatings.

(b)(25) And (c)(2)

The NPCA would like to clarify its position on the use of Industrial Maintenance Coatings in commercial situations where extreme environmental conditions specified in the category definition are present. As written (b)(25) contains the statement "Effective January 1, 2003, Industrial Maintenance Coatings are not for residential use ……"

The NPCA believes that the use of industrial maintenance coatings in commercial situations can be accomplished without any adverse health impacts. These coatings are normally labeled for "For Professional Use Only" and are applied by professionals. In fact the proper application of an industrial maintenance coating in place of a rust preventative coating could reduce the potential emissions increase of a rust preventative coating since the limit for IM is lower than the rust preventative limit and will be substantial lower come January 1, 2004. There will remain the need for rust preventative coatings by non-professional users, however, so it would not be appropriate to remove this category.

Likewise we believe that the use of rust preventative coatings that meet the limit for industrial maintenance coatings should not be excluded from industrial use.

These changes will further promote clarity and consistency among AIM rules in California.

Recommendation:

Amend the last paragraph of (b)(25) to read:

> "Effective January 1, 2003, Industrial Maintenance Coatings are not for use in areas not exposed to such extreme environmental conditions."

And replace the last sentence in paragraph(c)(2) with:

"No person shall apply or solicit the application within the district of any rust preventative coating for industrial use unless such rust preventative coating meets the VOC limit for industrial maintenance coatings as specified in the table of standards"

(b)(48) Specialty Primers inclusion of Stain Blocking

The definition does not take into account the data from the NTS study, which clearly showed that stain blocking properties were absent from ALL of the waterborne primers tested at any VOC; and that they were present in ALL of the solvent borne primers tested. This data was one of the reasons CARB included stain blocking as a condition qualifying a primer for the specialty primer definition and limit. In the absence of any stain blocking properties, there are potential impacts from the substitution of noncompliant products. This change will make the definition consistent with the definition in the SCM.

Recommendation: Revise the definition of Specialty Primers to add the phase "or to block stains." The labeling requirements in (d)(6) should also be revised to include the phase consistent with the SCM

(c)(3) Most Restrictive VOC Limit

The list of coatings should be expanded to include all 15 categories of coatings listed in the SCM. Again this would promote clarity and consistency among the AIM rules in the entire state.

(d)(9) Liability

This section should be rewritten to limit liability to improper use by the applicator. The reference to what a manufacturer, distributor, or seller knows or should have known as to how the coating would be used should be eliminated.

Thank you for the opportunity to comment on the revision of Rule 1113. We also urge the district to consider the comments that have been submitted as a result of the meeting last Thursday by The Sherwin Williams Company and the Dunn Edwards Corporation. If you have any questions concerning these suggested changes, please fell free to call me at 202-462-6272.

Best regards,

Robert J. Nelson
Senior Director, Environmental affairs

National Paint and Coatings Association

Cc: Lee Lockie
Naveen Berry
Dave DeBoer
Dan Russell

AQMD RESPONSE

The SCAQMD recognizes the National Paint and Coatings Association response to the proposed revision of Rule 1113 presented at the October 31, 2002 Public Consultation Meeting.

The SCAQMD agrees with NPCAs position on the Industrial Maintenance Coating Category elimination of the exclusion of floors from the definition and has proposed appropriate language in section (b)24) as follows:

"Industrial Maintenance Coatings are coatings, including primers, sealers, undercoaters, intermediate coatings and topcoats, formulated for or applied to substrates, including floors, that are exposed to one or more of the following extreme environmental conditions:…"

The SCAQMD does not agree with the commentator's position on the Industrial Maintenance Coating Category. The commentator specifically refers to use of industrial maintenance coatings in commercial situations. Section (c)(2) specifically indicates that Industrial Maintenance Coatings are not for residential use and rust-preventative coatings are not for industrial use; however, the rule does not exclude the application of an Industrial Maintenance Coating in a commercial setting as long as it meets the extreme environmental conditions set forth in the definition.

The SCAQMD recognizes the request to allow the use of a Rust Preventative Coating in an industrial application and has included language in section (c)(2) of the rule indicating that rust preventative coatings may be used in an industrial application as long as it complies with the Industrial Maintenance Coating VOC limit specified in the Table of Standards. The commentator is referred to the response given to comment letter #6-14 previously received from Sherwin-Williams for additional details.

The SCAQMD does not agree with the commentator's suggestion to include Stain Blocking in the Specialty Primers Coating Category. Based on a technology assessment conducted, specifically for stain-blocking, staff will not propose modifying the definition of the Specialty Primers. The commentator is referred to the response given to comment letter #6-11 previously received from Sherwin-Williams for additional details.

The SCAQMD disagrees with the commentator to expand the most restrictive limit provisions provided in section (c)(3) to include all 15 categories listed in the CARB SCM. The commentator is referred to the response given to comment letter #6-12 previously received from Sherwin-Williams for additional details. . Staff believes that adding more categories to Section (c)(3) may contribute to potential substitution, and therefore it is not prudent to increase the number of categories to the exemption of the most restrictive limit.

The commentators suggested rewording of section (d)(9) to limit the liability of improper use by an applicator has been partially incorporated into the rule language as follows:

"A manufacturer, distributor, or seller of a coating meeting the requirements of this rule, who supplies that coating to a person who applies it in a non-compliant manner, shall not be liable for that non-compliant use, unless the manufacturer, distributor, or seller knows that the supplied coating would be used in a non-compliant manner."

Additionally the commentator suggests removing and reference to the "seller knows or should have known" in the definition. The SCAQMD has agreed to strike the phrase "should have known" in the proposed language.

COMMENT LETTER #26 FROM
BONA KEMI USA, INC.

From: Gerald.Thompson@bona.com
Sent: Friday, November 08, 2002 4:29 PM
To: David De Boer
Cc: Lisa.King@bona.com
Subject: Amended rule 1113 "Floor Coatings" definition

Importance: High

Dave,
As we discussed today via phone, I am concerned as to the recent definition change for the "Floor Coatings" category on the proposed amended rule 1113 that you sent to us earlier this week. The concern stems from our interpretation of the "Varnish" and "Sanding Sealer" categories vs. the "Floor Coatings" category. The majority of our products fall under the "Clear Wood Coatings" category, and then the "Varnish" or "Sanding Sealer" definitions. While they are applied to flooring, they have up until now most accurately fit into these two definitions. However, by removing the word "opaque" from the Floor Coating definition, we are concerned that our products could suddenly fall under Floor Coatings as they are clear coatings for (wood) flooring. I understand that the change made in the Floor Coatings category was also related to changes in the "Industrial Maintenance Coatings" category, and that the removal of the word "opaque" allows for certain IM clear coats to be used on flooring. In order to clarify this situation, I would propose the following language be added. This is based on the Code of Federal Regulations (40 CFR, Part 59, subpart D, 59.402(8)): "Varnishes and Sanding Sealers that also meet the definition for floor coatings are subject only to the VOC content limit of this subpart for Varnishes and Sanding Sealers respectively" Please let me know if you agree that this will alleviate any confusion on this issue.

(On a separate note, we are not able to locate this on the website yet--what is there is the November 1 version? Are we looking in the wrong area?)

Sincerely,
Gerald E. Thompson
Director of Research & Development / QC / Regulatory Compliance BonaKemi USA, Inc.
(303) 371-1411 x331

Please Note: My email has changed to gerald.thompson@bona.com. Email sent to gerald.thompson@Bonakemi.com will no longer be forwarded!

AQMD RESPONSE

The SCAQMD agrees with the commentator and has decided to retain the limitation that floor coatings be “opaque”, as discussed in the October 31, 2002 public consultation meeting. This limitation was also part of the May 14, 1999 amendments, as well as the CARB SCM. The removal of the word “opaque” was based on a Sherwin-Williams Company comment at the October 31, 2002 Public Consultation Meeting. Staff interpreted the comment to suggest clear floor coatings should also be covered by the definition of floor coatings. In response to that comment, staff revised the definition of floor coatings to remove the word “opaque” to include both opaque and clear floor coatings. However, The Sherwin Williams Company has informed staff that it misinterpreted its comment. In addition, other manufacturers of clear floor coatings have also expressed concern about the change; therefore, it has been reintroduced into the language.

COMMENT LETTER #27 FROM
MWD

From: Kaufman,Carol Y [cykaufman@mwdh2o.com]
Sent: Wednesday, November 06, 2002 2:31 PM
To: 'ltisopulus@aqmd.gov'
Cc: Barry Wallerstein; Lee Lockie; Naveen Berry; David De Boer;
Clark,John E; Ujiiye,Baron M; Wallace,Johnny
Subject: Metropolitan Water District Of Southern California Comments re:
Proposed Amended Rule 1113

Importance: High

Attached is Metropolitan's comment letter to PAR 1113. A hard copy will follow in the mail.

If you have any questions, please do not hesitate to contact me.

<<AQMD1113-R-02-201.doc>>

Carol Kaufman
Metropolitan Water District of Southern California
(213) 217-6207.

November 6, 2002

Mr. Laki Tisopulus
Assistant Deputy Executive Officer
Planning, Rule Development, and Area Sources
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, California 91765-4182

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Dear Mr. Tisapolus:

Comments on the December 6, 2002 Proposed Amendments to Rule 1113 – Architectural Coatings

The Metropolitan Water District of Southern California (Metropolitan) appreciates this opportunity to provide comments to the South Coast Air Quality Management District (SCAQMD) on the Draft Proposed Amended Rule 1113 – Architectural Coatings, dated December 6, 2002, and which was distributed by e-mail on October 30, 2002. Metropolitan distributes wholesale water obtained from the Colorado River and Northern California to 26 member agencies (cities and water districts) and provides more than one-half of the water used by approximately 17 million people in six counties covering the 5,200 square-mile coastal plain of Southern California. To provide this service, Metropolitan operates an extensive system of water conveyances, reservoirs, and water treatment plants.

As stated in our September 2, 2002 correspondence, Metropolitan is supportive of the SCAQMD's goal of reducing volatile organic compound (VOC) emissions from the application of architectural/industrial maintenance (AIM) coatings. Metropolitan utilizes AIM coatings on critical components of our water delivery system, and as such, it is essential that we are able to protect our infrastructure while making the transition to lower VOC coatings.
The original May 14, 1999 amendments to Rule 1113 allowed such protection, by providing essential public services with an interim volatile organic compound (VOC) limit of 340 g/l for industrial maintenance coatings. However, since the rule currently proposed for readoption does not contain this provision, we are concerned that this could potentially jeopardize our ability to protect our water system infrastructure.

EPSA Technology Assessment

During the adoption of the original 1999 amendments, SCAQMD acknowledged the public agencies existing test requirements and the SCAQMD Board directed staff to engage in a technical assessment with the Essential Public Service Agencies (EPSA). Metropolitan has taken a lead role in this assessment. Over the past thirty years, Metropolitan has developed a rigorous performance test program to ensure that the coatings meet durability requirements, and to support fair and accessible public contracting practices. Our test program entails identifying and obtaining a test sample of a candidate coating, including a health and safety review; product application and curing; testing in the laboratory (e.g., immersion, high humidity, and weatherometer testing following American Society for Testing and Materials standard test methods); field testing (real time exposure and/or testing in an actual field construction project); and incorporation into our contract specifications. The information generated through Metropolitan's coatings test program is provided to our member agencies and to other public agencies for incorporation into their specifications (these agencies include the United States Department of the Interior -- Bureau of Reclamation, the Department of Water Resources, Los Angeles Department of Water and Power, Calleguas Municipal Water District, Eastern Municipal Water District, East Bay Municipal Water District, San Francisco Public Utility District, to name a few).

Consistent with Metropolitan's existing test program, during the 1998/1999 rulemaking activities, as well as during the California Air Resources Board's 2000 efforts to adopt the state Suggested Control Measure for Architectural Coatings, we had requested that additional time be provided to identify and perform laboratory and field tests of the new compliant coatings. [1]
The multi-year EPSA technology assessment focuses on lower VOC compliant coatings (with an emphasis on 100g/l and some systems that meet the 250 g/l limit) that can be

reliably supplied, and that are specific to the environmental conditions of our delivery system and infrastructure. As discussed in the July 12, 2002 SCAQMD Annual Status Report on Rule 1113, the Essential Public Service Agency technology assessment is being conducted over a three to four year test period in several phases. VOC-compliant industrial maintenance coating systems, representing immersion, atmospheric (primarily metal substrates exposed to direct sunlight), chemical containment, roofing and coal tar compatible systems, have been applied beginning in August of 2000, and are currently undergoing environmental testing. With the introduction of new compliant materials, candidate products are identified and testing initiated on an ongoing basis. The selection criteria are based on VOC compliance, NSF certification, feasibility/compatibility with the essential public service agencies environmental conditions, and manufacturer warranty. Key characteristics that are being evaluated are moisture penetration, barrier strength, temperature stability, mechanical strength, and resistance to rust formation. Subsequently, to date, the data and results are incomplete. Any exposure data generated to date are very preliminary and limited, and therefore definitive conclusions as to the coating performance cannot be made. However, based on Metropolitan's coating experience, certain trends have been

observed. Low VOC (< 250 g/l) industrial maintenance coatings for our immersion service environment are showing a positive performance trend. However, a pool of sufficient
immersion coatings for purposes of competitive bidding has not been identified for all applications. In regard to atmospheric coatings, the testing performed to date has potentially identified one water reducible urethane system with acceptable physical and performance properties for our service environments.

Competitive Bidding Process

As outlined above, based on the testing performed to date, Metropolitan does not have a sufficient pool of low VOC coatings for all service environments. As a public agency, this can be problematic since we are subject to specific competitive bidding conditions. Unlike the private sector, in order to sole source or exclude products under the Public Contract Code, Metropolitan is required to make certain findings that are subject to legal challenge. To adequately respond to such challenges, we need to have a sufficient inventory of approved coatings. As public stewards, Metropolitan cannot accept manufacturer's information at face value, but must submit the products to our testing program. The Essential Public Service Provision, previously provided in the May 1999 Rule 1113 amendments, gave us time to test the products and to develop an inventory of available coatings. However, without the provision, we are vulnerable to potential legal challenges that can possibly protract our projects, which, in turn, can ultimately affect the reliability of our infrastructure.

Reliability

As a public water supplier, it is incumbent upon Metropolitan to provide our customers (e.g., residential and commercial developments, hospitals, fire departments, etc.) with reliable and uninterrupted service. In order to maintain continuous water delivery, it takes considerable planning to schedule shutdowns to perform maintenance (both preventative and reactive) on our facilities and distribution systems that cover a 5,200 square-mile service area. As such, to maintain reliability, it is critical that we have an adequate pool of available coatings to support our maintenance and shutdown schedule.

To address our concerns, Metropolitan is asking SCAQMD to reconsider inclusion of the interim VOC limit for the Essential Public Service Coatings category. Should there be concerns regarding future litigation, it is recommended that a "Severability" clause be included in the rule, similar to the one found in Rule 1196 (Clean On-Road Heavy-Duty Public Fleet Vehicles) which states:

> "If any provision of this rule is held by judicial order to be invalid, or invalid or inapplicable to any person or circumstance, such order shall not affect the validity of the remainder of this rule, or the validity or applicability of such provision to other persons or

> circumstances. In the event any of the exceptions to this rule is held by judicial order to be invalid, the persons or circumstances covered by the exception shall instead be required to comply with the remainder of this rule."

Thank you for your consideration of these comments. We are continuing our efforts in the joint EPSA technology assessment, and will keep SCAQMD apprised of our findings. If you have any questions regarding these comments, please contact Ms. Carol Kaufman at (213) 217-6207.

Very truly yours,

Jill T. Wicke
Manager, Water System Operations

CYK/pwr R-02-201

cc: Barry Wallerstein, SCAQMD
Lee Lockie, SCAQMD
Naveen Berry, SCAQMD
Dave De Boer, SCAQMD

[1] Note: At the time of these comments, we indicated that a high rate of coatings did not meet performance expectations. The supporting examples provided were based on data generated by Metropolitan's internal testing of a wide variety of coatings obtained from both large and small commercial paint manufacturers, representing both high and low VOC coatings. None of the test results cited were related to the EPSA technology assessment. The high performance failure of the coatings tested prior to the 1999 amended rule can be attributed to Metropolitan's product selection and testing program in place at that time. The product selection process was largely manufacturer driven – manufacturers submitted products for Metropolitan's service environments that they felt would be successful based on their products performance characteristics and their understanding of Metropolitan's applications. Specific VOC content of the coatings was not one of the selection criteria. However, because the manufacturers were not fully aware of the specific corrosive conditions in Metropolitan's treatment and distribution systems, a large number of the products were not well matched to our environments and subsequently did not meet performance expectations.

The adoption of the May amendments prompted Metropolitan to modify our selection process to identify a new pool of compliant and feasible coatings to ensure an adequate replacement inventory is available. As part of this selection process, products that are selected for testing must be VOC compliant, possess American National Standard Institute/NSF International Standard 61-2001/Addendum 1.0-2001 (Drinking Water Treatment Chemicals – Health Effects) certification, and must be applicable for our specific environmental conditions. Metropolitan is continuously looking for new chemistries and new formulations that are represented by the manufacturer to be compatible with our treatment and distribution systems. As the lower VOC compliant coatings are shown to meet our performance standards, they will be incorporated into Metropolitan's coating practices, eliminating the use of the comparable higher VOC material.

AQMD RESPONSE

The SCAQMD recognizes the Metropolitan Water District (MWD) as a major water purveyor in Southern California and appreciates their support of the SCAQMD's goal of reducing VOC emissions from the application of architectural coatings.

The commentator is correct that the currently proposed language does not have a provision for essential public services as was included in the original May 14, 1999 amendments to the rule and the SCAQMD recognizes MWD's concern.

The Essential Public Service Coatings category was incorporated into the May 14, 1999 rule amendments to provide a higher interim VOC limit of 340 g/l in order to provide sufficient time for the providers of essential services to test and update their specifications.

The SCAQMD recognizes the intensive performance test program utilized by MWD consisting of a two year laboratory assessment, followed by a one year field exposure tests, and then a two year pilot testing phase before they can incorporate a new coating into their specifications. However, based on comments received from the industry, staff is proposing to delete the Essential Public Service Coating Category, and extend the implementation date for the Industrial Maintenance Coating Category from the proposed January 1, 2003 to January 1, 2004. This revised proposal includes a VOC limit of 250 g/l effective January 1, 2004, which aligns the implementation date with the CARB's SCM, allowing even more assurance that users will be comfortable with the compliant coatings, and if there is a special need, averaging will be available to obtain specific coatings.

COMMENT LETTER #28 FROM SHERWIN-WILLIAMS

From: mkharding@sherwin.com [mailto:mkharding@sherwin.com]
Sent: Wednesday, November 13, 2002 10:13 AM
To: Naveen Berry
Cc: Laki Tisopulos
Subject: Rule 1113

Naveen,

In reviewing the proposed Rule 1113 released with the Hearing Package, we have noticed that the definition of Floor Coatings is no longer limited to opaque coatings.
At the Public Consultation Meeting we pointed out that several clear coatings had been included in the Compliant products listing for floor coatings and that these did not meet the definition for that category as presented at the Consultation Meeting. At the meeting we were requesting that these clear coatings be removed from the listing. We were not requesting that the definition for floor coatings be changed to remove the word "opaque." We hereby request that the definition for floor coatings be limited to opaque coatings, as it was in the definitions found in the proposals presented at both Public Consultation Meetings and the Workshop.

Thank you for your attention to this matter.

Madelyn K. Harding, Manager
Product Compliance & Registrations
The Sherwin-Williams Company

AQMD RESPONSE

The SCAQMD has recognized the need to reintroduce the limitation that floor coatings be "opaque". This limitation was also part of the May 14, 1999 amendments, as well as the CARB SCM. The removal of the word "opaque" was based on your comment at the October 31, 2002 Public Consultation Meeting. Staff interpreted the comment to suggest clear floor coatings should also be covered by the definition of floor coatings. In response to that comment, staff revised the definition of floor coatings to remove the word "opaque" to include both opaque and clear floor coatings. However, as you reflected in the above letter, since your comment was misinterpreted staff is proposing to reintroduce the word "opaque" into the definition. In addition, other manufacturers of clear floor coatings have also expressed concern about the change; therefore, it has been reintroduced into the language.

A P P E N D I X B

SUMMARY OF ADDITIONAL COATINGS

Due to the voluminous nature of the coating product sheets (~1000 sheets) from which the following data were derived, they are available upon request by contacting Roberta Rigg at (909) 396-2659.

Floor Coatings – 100g/L –50g/L (8 samples)

Coating Company, Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @3mils	Physical Properties	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Color Wheel 380 Acrylic Floor & Deck Paint, Satin,1	56	37.2 ±2	200	Abrasion, blistering, cracking, chipping and pealing resistant	Excellent color retention and chalk resistance	60° 20-30 Satin gloss	N/A
Color Wheel 3900 Ultra Tex-Trac Concrete Coating, Flat,1	91	48.9 ±2	275	Abrasion, blistering, cracking, chipping and pealing resistant	Excellent color and gloss retention	85° 1-5 Flat	N/A
Insl-X, Sure-Step Anti-Slip Coating SU-series	97	41	219	Skid resistant for interior or exterior concrete or asphalt	Abrasions resistant, color retention	Flat	N/A/1 year
JFB Hart Coatings, HP-100 polyurethane, 3	67	41	217	Adhesion 5B Abrasion 725 cycles	Chemical, acid, abrasion and mar resistant	Up to 95° @60°	90min/1 year
JFB Hart Coatings, HP-146 Clear or Pigmented polyurethane, 1	100	30	160	Adhesion 5B	Chemical and abrasion resistant	80° ± 5 @60°	Indefinite
Thoro, Thorosheen w/b acrylic paint Int/Ext,1	81	38	203	Passed ¼" flexibility test	Mildew and UV resistant	Semi-gloss	N/A/1 year
Thoro, Thorocoat F-74 w/b acrylic coating,1	56	50 ±1	267	Skid resistant for floors walkways, stairways	UV resistant	N/A	N/A
Cloverdale Paint Step-Safe Non-Slip Coating	89	51	272	Skid resistant for wood asphalt and concrete	Tough and durable non-slip	N/A	N/A
Average Summary of Samples	**79.6**	**42.1**	**226.6**				**90 min/ Indefinite**

N/A= NOT AVAILABLE

Floor Coatings - 50 g/l or less (11 samples)

Coating Company, Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Physical Properties	Durability Qualities	Gloss Characte r-istics	Pot Life @70 deg./ Shelf Life
Benjamin Moore M40 Epoxy floor coating, 1	0	100	200	Adhesion 480psi, Tensile Strength 850 psi, Taber .06g	Abrasion resistant, non –flammable	95%@ 60deg.	30min/ N/A
Benjamin Moore M41 Epoxy floor sealer, 1	0	51	325	Tensile Strength 8800 psi Taber .05g	Impact resistant	50% @ 60deg.	20min./ N/A
Andek PolaFloor P.U.R. urethane, 3 part	0	100	N/A	Tensile Strength 2685 psi	Impact resistant	Satin	40min/1 year
Andek Polafloor Epoxy Topping, 2	0	100	30	Tensile Strength 1750 psi	Impact resistant	Satin	20min/1 year
Curecrete, Ashford Formula , 1	0	N/A	200	N/A	Continually hardening	Wax like sheen	Indefinite
JFB Hart Coatings, HP-105 Clear polyurethane, 2	0	53	283	Adhesion 5B Abrasion 1430 cycles	High gloss UV and chemical resistant	Up to 95° @60°	90min/1 year
JFB Hart Coatings, HP-105 Pigmented polyurethane, 2	10	63	337	Adhesion 5B Tensile 2609 psi	High gloss UV and chemical resistant	Up to 95° @60°	120min/1 year
JFB Hart Coatings, HP-147 polyurethane, 1	0	N/A	N/A	Tensile Strength 4000 psi, pH=8.2-9.2	UV resistant	80° ± 5 @60°	N/A
JFB Hart Coatings, HP-330 Clear or Pigmented polyurethane, 2	11	90	480	N/A	High gloss, acid and chemical resistant	Up to 85° @60°	60min/ N/A
Color Wheel 381 Latex Floor Paint, Flat,1	29	38.8 ±2	200	Non-skid finish and blistering, cracking, chipping and pealing resistant	Excellent color retention and chalk resistance	85° 5-15 Flat finish	N/A
Insl-X, 100% Solids Epoxy Coating,2	0	100	533	Self leveling epoxy for severe environments	Abrasions and chemical resistant	High Gloss	45min/1 year
Average Summary of Samples	**5**	**72.3**	**287.6**				**53 mins. / Indefinite**

N/A= NOT AVAILABLE

Industrial Maintenance Coatings - from 250 g/l to 100 g/l (18 samples)

Coating Company, Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended Substrate/exposure	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Wasser MC-Zinc 200 liner, 1	<200	73± 3.0	390	Chemical/Marine structures, Bridges, tanks	Cold, damp resistant	N/A	N/A /1 year
Wasser MC-Aluminum 200 Topcoat, 1	<200	73± 3.0	390	Weathered or corroded Steel, Galvanized Steel	Corrosion resistant	matte	N/A/ 1 year
Wasser MC-Ferrox A 200 Topcoat, 1	<200	71± 3.0	379	Bridges, Rail Cars, Tanks, Ships, any steel	Weather resistant	Low gloss/ matte	N/A/1 year
Wasser MC-luster 200 mid or top coat , 1	<200	71± 3.0	379	Marine Splash zone, exterior steel	Abrasion, UV resistant	20° –60°	N/A/1 year
Wasser MC-Miomastic 200 Topcoat, 1	<200	73± 3.0	390	Old weathered coatings; off shore and harsh environments	Offshore harsh environments	Matte	N/A/1 year
Wasser MC-Miozinc 200 zinc-primer, 1	<200	73± 3.0	390	Tanks, Chemical/marine structures, bridges	Corrosion resistant	Flat	N/A/1 year
Wasser MC-prebond 200 primer, 1	<200	73± 3.0	390	Steel	Rust proof	Matte	N/A/1 year
Wasser MC-Shieldcoat 200 Topcoat, 1	<200	71± 3.0	379	Containment ponds and tanks	Color/ gloss retention	60°-90° as required	N/A/1 year
Color Wheel, Aquatec Acrylic Enamel 1600, 1	120	42.5± 2	226	Structural Steel, Aluminum, wood, brick	Excellent	S/g 60° gloss: 50-70	N/A
Color Wheel, Aquatex Acrylic Enamel 1650, 1	123.4	39.8	213.3	Architectural/ Industrial/ commercial	Excellent	60° 15-35 Satin gloss	N/A
Insl-X, Aqualock w/b primer, sealer, stain killer 0500	118	43	230	Industrial applications over painted surfaces, top or mid coat	Cross Hatch adhesion- 5	Eggshell, low sheen	N/A/1 year
Insl-X, Insl-Thane II enamel 7500, 1	174	41	219	Light industrial uses	Cross Hatch Adhesion-5	80@ 60°, 45@60°	N/A/1 year

(CONTINUED)

Industrial Maintenance Coatings - from 250 g/l to 100 g/l (18 samples)

Coating Company, Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Recommended Substrate/ exposure	Durability Qualities	Gloss Charact er-istics	Pot Life @70 deg./ Shelf Life
ICI Devflex 4206 Waterborne Acrylic Semi-Gloss Enamel Int./Ext.	218	42	336-448	Structural steel, storage tanks, wood or metal trip	Taber 260mg	50 units @ 60°	N/A/1 year
Du Pont, Tufcote 72P W/B DTM Acrylic Enamel	228	35.5	190	Steel, Galvanized metal, Aluminum, concrete	Excellent color/gloss retention	70 ± 5 @60°	N/A/2 years
Du Pont, Corlar VHS 90P epoxy mastic, 2	101	90	480	Bridges, Structural steel, corrosive environments	.17g loss/1000 cycle scrub	N/A	90min./1 year
Sherwin Williams EPO-PLEX MULT-MIL W/B Epoxy,2	240	42	224	Primed steel and masonry surfaces, concrete, plaster, wallboard and wood	141mg loss/1000 cycles 1 kg load		8 hrs./1 year
Sherwin Williams Zinc Clad VI W/B Organic Zinc Rich Epoxy	163	42.5± 2	241	Blasted steel on barges, ships, fabrication shops, chemical plants, drilling rigs	Cathodic protection, corrosion resistance	N/A	8 hrs./1 year
International Protective Coatings Interfine 979 Polysiloxane,2	165	76	405	Bridges, offshore structures, tank farms and general industrial and commercial steelwork	Excellent color, gloss retention and corrosion resistance	Gloss	2 hrs./N/A

Average Summary of Samples	**180.6**	**59.6**	**325.1**				**4.9 hr. / 1 year**

N/A= NOT AVAILABLE

Industrial Maintenance Coatings - 100 g/l or less (54 samples)

Coating Company, Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended Substrate/exposure	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Duromar, HPL-1110 tank lining, 2	0	100	533	Oil & other storage tanks	Chemical resistant; pH 2.5-14	Flexible, low viscosity	45mins/ N/A
Duromar, HPL-1111 tank lining, 2	0	100	533	Dirty water systems	Non-corrosive pH 2.5-13	Low viscosity	45mins/ N/A
Duromar, HPL-1301 concrete sealer, 2	0	100	533	Can be used as clear topcoat, great for floors	Moisture tolerant pH 3.0-12.	N/A	60mins/ N/A
Duromar, HPL-1510 steel primer, 2	0	100	533	Allows long overcoat windows	Alkaline resistant pH 2.5-14	N/A	45mins/ N/A
Duromar, HPL-2110 epoxy, 2	0	100	533	Replaces conventional coal tar epoxies	Alkaline/ hydrocarbon resistant pH 2.5-14	N/A	30mins/ N/A
Duromar, HPL-2131 anti-corrosive, 2	0	100	533	Tanks	Alkaline and hydrocarbon resistant pH 2.5-14	Trowel-able	46mins/ N/A
Duromar, HPL-2201, 2	0	100	533	Vessels, baghouse, EP walls, coal bunkers, floors	Alkaline/ abrasion/ hydrocarbon resistant; pH 1.5-14	Low temp., fast cure, low viscosity	20min/ N/A
Duromar, HPL-2221 tank lining, 2	0	100	533	Rail cars, Ash hoppers, slurry tanks, floors	Alkaline and hydrocarbon/ abrasion resistant,	Good flexibility	45min/ N/A
Duromar, HPL-2310, 2	0	100	533	N/A	Alkaline and hydrocarbon resistant pH 1-14	Ambient cure	45min/ N/A
Duromar HPL-2510, 2	0	100	533	Circulating water pipes, sewage treatment, water tanks	Alkaline and hydrocarbon resistant pH 2.5-14	N/A	45min/ N/A
Duromar, HPL2510-UW, 2	0	100	533	Dams, concrete, tanks	Alkaline resistant pH 2.5-14	Moisture tolerant	40min/ N/A
Duromar, HPL-3320 epoxy, 2	0	100	533	Secondary containment, floors	Alkaline and hydrocarbon resistant pH .5-14	N/A	30min/ N/A
Duromar, HPL-4300, 2	0	100	533	Boiler skirts, incinerator outlets	Abrasion resistance, high temp.	N/A	30min/ N/A

(CONTINUED)

Industrial Maintenance Coatings - 100 g/l or less (54 samples)

Coating Company, Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended Substrate/exposure	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Duromar, HPL-4310 novolac, 2	0	100	533	Petro. & chem. storage tanks, utility, FGD systems	Alkaline and hydrocarbon resistant pH 0.5-14	N/A	45min/ N/A
Duromar, HPL-4320, 2	0	100	533	Great for concrete, sulfuric acid	Alkaline, acid, carbon resistant pH .5-14	N/A	20min/ N/A
Duromar, HPL-4321, 2	0	100	533	Great for methylene chloride & other chemicals	Chemical resistant pH 0.5-14	N/A	25min/ N/A
Duromar, HPL-5220 polyurea, 2	0	100	500	Secondary contain-ment, conveyor belt coatings	Alkaline res. pH 3.0-10	N/A	45min/ N/A
Enviroline, 50 epoxy primer, 2	0	100	534	Concrete or masonry	Moisture tolerant	N/A	15-20min /2 years
Enviroline, 124 epoxy (3 cure rates available), 2	0	100	534	Pits and pinholes in steel, concrete	Chemical resistance, Hardness 75-80	N/A	8-12min/ 2 years
Enviroline, 150 epoxy, 2	0	100	534	Chem. containment vessels, storage tanks steel, concrete, floors	Abrasion/ impact resistant	N/A	5min @100deg/ 2years
Enviroline, 222 epoxy, 2	0	100	534	Sewer pipes, lift stations, wet wells, containment basins	Moisture tolerant	N/A	10min@ 100deg/2 years
Enviroline, 224 epoxy, 2	0	100	534	Waster water treatment application	Chemical/ moisture resistant	N/A	21min/2 years
Enviroline, 225 epoxy, 2	0	100	534	tanks, Waste water treatment plants, steel & concrete, floors	Acid resistant	N/A	10min@ 100deg/2 years
Enviroline, 232 epoxy lining, 2	0	100	534	Wastewater treatment basins, Steel, concrete, storage tanks.	Abrasion, impact resistant Chemical resistant	N/A	7min@ 100deg/2 years
Enviroline, 240CW epoxy, 2	0	100	534	Concrete/ steel, car washes concrete trenches	Thermal and mechanical shock resistant	N/A	13min @100deg/ 2years
Enviroline, 250 epoxy, 2	0.42	100	534	Steel & concrete, storage tanks, wastewater treatment/ cooling tower basins	Abrasion/ impact resistant	N/A	13min @100F/2 years

(CONTINUED)

Industrial Maintenance Coatings - 100 g/l or less (54 samples)

Coating Company, Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended Substrate/exposure	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Enviroline, 333 epoxy aquatic environments, 2	0	100	534	Swimming pools, fountains, aquatic theme parks, concrete	Moisture tolerant	N/A	26min/2 years
Enviroline, 333BR epoxy aquatic environments, 2	0	100	534	Swimming pools, water theme parks, fountains, concrete	Chemical/ moisture tolerant	N/A	26min/2 years
Enviroline, 370 epoxy FDA approved int./ext., 2	0	100	534	Rail hopper cars, metal	Reverse impact resistant, flexible	High gloss	30min/2 years
Enviroline, 376F-30 epoxy petroleum industry, 2	0	100	534	Petrol. Bulk storage tank linings, floors, tanks pools, troughs, sumps	Abrasion resistance, good flexibility	N/A	30min/2 years
Enviroline, 376F-60 epoxy glass flake lining for pet. Applications., 2	0	100	534	Steel, concrete, bulk storage tanks, pipes, pits	Abrasion/heat/ chemical resistant,	N/A	30min/2 years
Enviroline, 393-PM epoxy, 2	0	100	534	Storage tanks, floors	Corrosion/stain resistant, low temp. application	Excellent gloss	15min/2 years
Enviroline, 394FS epoxy, 1	0	100	534	Pipe coating repair	Corrosion, abrasion resistant	N/A	16min/2 years
Enviroline 399-30 petroleum Ind., 2	0	100	534	Steel & concrete storage tanks, pipes, sumps	Cathodic disbondment resistant	N/A	30min/2 years
Enviroline, 399-60 epoxy petroleum Ind., 2	0	100	534	Reinforced coating for steel & concrete	Chemical and solvent resistant	N/A	30min/2 years
Enviroline, 399ABR epoxy, 1	0	100	534	Potash mines, ext. pipelines, slurry tanks	Corrosion resistant, abrasion resistant	N/A	15min @100F/ N/A
Everest, EnviroSil 570 silicone elastomeric coating, 2	.25	63± 2	336	Protection for roof systems	Weather resistant	N/A	N/A/6 months
Gaco, LM-60 urethane , 2	0	100	533	For potable water storage tanks of concrete metal plywood	Salt/alkali resistant	N/A	60 min/ 1 year
Gaco, U-62 urethane base and topcoat, 2	0	100	533	Floors of plywood, concrete, metal	Solvent resistant	N/A	20min/ 1 year

(CONTINUED)

Industrial Maintenance Coatings - 100 g/l or less (54 samples)

Coating Company, Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/exposure	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Gaco, S-50 silicone, 1	0	18± 1	287	Decks, metal roofs, where VOC would be dangerous	Weather proof	N/A	N/A/1 year
AirProducts, Anquamine 701 epoxy, 2	0	70.6	300	500 psi , green concrete	156mg loss/1000 cycles	N/A	2-5min/ 2 years.
Pacific Polymers, Res-Crete epoxy, protective coating or lining, 2	0	100	50	Aggregate mix for floors/decks, overlays	Strong	N/A	35min/ N/A
Carboline, POLIBIRD 705 polyurethane, 2	0	100	534	700psi	Abrasion. Erosion resistant	Glossy	5-8min/ 1year
Carboline, POLIBIRD 706 polyurethane, 2	0	100	534	Application over fabrics for production of geomembrane liner	1000 revs. Abrasion resistant	N/A	7-10min/1 year
Carboline, POLIBIRD 670S epoxy primer, 2	3.3	99	533	Pumpstations, man holes, cooling towers	Moisture tolerant	N/A	1 hr./1 year
Carboline, Carbozinc 11 WB, 2	0	79 ±1	533	Weldable pre-construction primer or primer under various topcoats	Excellent corrosion protection and good resistance to salting	N/A	8 Hours./1 year
Superior Environmental, SC-1100 epoxy novolac primer, 2	0	100	533	Municipal waste, floor primer, pipelines	Chemical/heat resistant	N/A	2.5hrs. /N/A
Wasser, MC-Miozinc 100 urethane, 1	<100	73±2	390	Tanks, chemical, marine, bridges	Rust and corrosion resistant	N/A	N/A/1 year
Wasser, MC-Luster 100 urethane, 1	<100	70±2	366	Applied anywhere including marine splash zones	UV and abrasion resistant	Semi-gloss	N/A / 1 year
Wasser, MC-CR 100 urethane, moisture cure, 1	<100	73±2	390	Overcoat primer for old lead paint, spot prime steel	Resistance to aging and cracking	Matte	N/A/ 1 year
ZRC ZRC zero VOC, galvanizing compound metallic zinc coating, 2	0	43.5	232	Apply to carbon steel, cast iron, hot-dip galvanized, aluminum	Pencil Hardness 4B, anti-corrosion protection	Flat	8 hrs./1 year
Color Wheel, Aquatex Acrylic Primer 1635	87	43.6± 2	233	Metals, plastics, decking	Corrosion resistant	Primer	N/A

(CONTINUED)

Industrial Maintenance Coatings - 100 g/l or less (54 samples)

Coating Company, Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/exposure	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Sierra Performance Coatings, Concrete Enamel Gloss-S40	0	45	250	Concrete floors, walls and garage floors	<.2g loss/1000 cycles, chemical/stain resistant	Gloss	4 hrs./>1 year
Sherwin Williams Zinc Clad XI W/B Inorganic Zinc Silicate	0	68 ± 2	363	Blasted steel as a primer for severely corrosive environments	pH range 5-9 Abrasion and corrosion resistant	N/A	4 hrs./1 year
Average Summary of Samples	**7.2**	**91.6**	**483.4**				**31 min./ 1.6 years**

N/A= NOT AVAILABLE

Nonflats (High Gloss) - from 250 g/l to 150 g/l (3 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Recommended substrate/ exposure	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Frazee, 143 Glide Gloss I/e topcoat	228	36.9	200-300	Block, concrete dry wall, stucco, wood, metal, hardboard	N/A	16 hrs.	N/A/2 years
ICI Devoe, Devflex 4208QD, Int./ext. topcoat	205	41± 1	219	Various Substrates	260mg loss/ 1000 cycles	2 hrs.	N/A/1 year
Kwal-Howells, 8400 Acrylic Enamel, In/ext. topcoat	211	34	300-400	Various Substrates	N/A	6 hrs.	N/A

Average Summary of Samples	**214**	**37.3**	**273**			**8 hrs.**	**N/A/1.5 years**

N/A= NOT AVAILABLE

Nonflats (Semi-Gloss)- From 250 g/l to 150 g/l (6 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70deg./ Shelf Life
BenjaminMoore, Moorecraft Super Spec 170 ext.	<250	33	400-475	Various Substrates, house and trip	N/A	4 hrs.	N/A
BenjaminMoore, MoorGlo 096 House paint	191	41	400-450	Various Substrates, house paint	N/A	4 hrs.	N/A
Color Wheel, Tropicoat s/g House Paint 320, Ext.	153	32.7	300-500	Various residential surfaces	N/A	8 hrs.	N/A
Color Wheel, Optima Acrylic 350, Exterior	172	40.9	300-500	Light industrial, residential, commercial	N/A	8 hrs.	N/A
Color Wheel, Optima s/g enamel 360, Interior	203	35	300-500	All purpose industrial, residential, commercial	N/A	8hrs.	N/A
Dunn-Edwards, Permasheen Acrylic W901, Int./Ext.	235	36	350-375	Kitchen/bath room walls, high-traffic areas, trim , doors, cabinets, window frames	N/A	6-8 hrs.	N/A

Average Summary of Samples	**201**	**36.4**	**406**			**6.5 hrs.**	**N/A**

N/A= NOT AVAILABLE

Nonflats (Low-Gloss)- From 250 g/l to 150 g/l (3 Samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Recommended substrate/ exposure	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70deg./ Shelf Life
Earthtech Satin solid finish	232	39.46	400-450	Various Substrates	Durable, Washable	2 hrs.	N/A
Frazee 126 Mirro glide Low Sheen i/e	243	36.7	150 rough concrete 350metal	Various Substrates	1351	16 hrs.	N/A/ 2 years
ICI Dulux, Dulux Pro Eggshell AA, Interior	175	37± 1	400	Various Substrates	N/A	3 hrs.	N/A/ 1 year
Average Summary of Samples	**216.7**	**37.7**	**358.3**			**7 hrs.**	**N/A/ 1.5 years**

N/A= NOT AVAILABLE

Nonflats (Gloss) - from 150 g/l to 50 g/l (7 sample)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Frazee 041 Gloss latex interior	<150	34.5	200-300	Various Substrates	Good mar, scuff resistant	8 hrs.	N/A/2 years
Sherwin-Williams, SuperPaint latex Enamel A85, Ext.	119	42± 2	350-400	Various Substrates	N/A	18 hrs.	N/A
Vista Paint, Carefree 8500, Ext.	145	36	300-400	Various Substrates	N/A	8 hrs.	N/A
Miller, Envirolac Legacy Acrylic Water Borne 2600, Int./ext.	95	N/A	350-400	Various Substrates	N/A	4 hrs.	N/A
Target Coatings, Emtech U9300 top coat acrylic finishes	60	32	333	Interiors	UV resistant	N/A	N/A
Pittsburgh Paints, Manor Hall Acrylic Latex Int/Ext	149	38.1 ±2	200-250	Cabinets, trip, furniture, walls, wood, garden equipment	Superior adhesion/ block resistance/ Scrubability	4 hrs.	N/A
Pittsburgh Paints, Brilliant reflections latex Int/Ext.	120	37.7 ±2	200-250	Exterior Trim, Porch Furniture wood, Kitchen walls	Easy cleaning	4 hrs.	N/A
Average Summary of Samples	**119.7**	**36.7**	**304.7**			**8 hrs.**	**N/A / 2yrs**

N/A= NOT AVAILABLE

Nonflats (Semi-Gloss) - from 150 g/l to 50 g/l (12 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Recommended substrate/ exposure	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70deg./ Shelf Life
Frazee 024 Speedsheen semi-gloss interior.	100	27.8	150-350	Various Substrates	Flexible, washable	3-4 hrs.	N/A/2 years
Frazee 128 Satin Glide II i/e	121	33.5	200-300	Various Substrates	Durable/ washable	16 hrs.	N/A/2 years
BenjamineMoore K&B 322 interior	81	29	400-450	Kitchen & baths	N/A	8 hrs.	N/A
Benjamin Moore Moorecraft Super Spec ex. Satin 184	111	30	450-500	Various Substrates	N/A	4 hrs.	N/A
BenjaminMoore Moorcraft Semi-Gloss 283 Int.	116	27	400-450	Various Substrates	Pass	12 hrs.	N/A
Color Wheel, Hi-Hide S/G 220, Interior	105	33.5± 2.0	300-500	Various Substrates	N/A	8 hrs.	N/A
Color Wheel, Vina-Gloss latex enamel 420, Int.	107	32.5± 2	300-500	Various Substrates	N/A	8 hrs.	N/A
Sherwin Williams, ProMar 200 Latex, Interior	85	38± 2	350-400	Various Substrates	N/A	N/A	N/A
Rodda, Unique II Latex Enamel, Int./ext.	147	34± 2	280	Various Substrates	N/A	3 hrs.	N/A
ICI Dulux, Ultra-Hide Durus	79	41± 1	300-400	Various Substrates	N/A	4 hrs.	N/A/1 year
Porter, Interior latex 6079, Int.	115 untinted	27± 2	200-300	Various Substrates	N/A	4 hrs.	N/A
Target Coatings, Emtech U9300 top coat acrylic finishes	60	32	333	Interiors	UV resistant	N/A	N/A

Average Summary of Samples	102.3	32.1	351.1			7 hrs.	N/A/1.7 years

N/A= NOT AVAILABLE

Nonflats (Low-Gloss) - from 150 g/l to 50 g/l (22 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Recommended substrate/ exposure	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 dig./ Shelf Life
Frazee 022 lo-glo interior acrylic eggshell enamel	93	38.5	250-350	Various Substrates	1121	18 hrs.	N/A/2 years
Frazee 026 speedsheen eggshell interior	114	36.1	200-300	Various Substrates	Dirt resistant washable	18 hrs.	N/A/2 years
Color Wheel, Optima Acrylic Satin 130, Ext.	99.4	37.4± 2	300-500	Various Substrates	N/A	4 hrs.	N/A
Color Wheel, Satin House Paint 3400, Ext.	113	36.7± 2	300-500	Various Substrates	N/A	4 hrs.	N/A
Color Wheel, Weathermaster 3730, Ext.	81	37± 2	300-500	Various Substrates	N/A	4 hrs.	N/A
Color Wheel, Acrylic Conditioner 1252, Ext.	129	10± 2	250-400	Various Substrates	N/A	4 hrs.	N/A
Color Wheel, Optima satin Supreme 230, Int.	146	35.6± 2	300-500	Various Substrates	N/A	4 hrs.	N/A
Sherwin-Williams, ProMr200 Latex, egg-shel Interior	142	40± 2	350-400	Various Substrates	N/A	4 hrs.	N/A
Color Wheel, Hi-Hide Latex Enamel 440, Int.	78	38.3± 2	300-500	Various Substrates	N/A	8 hrs.	N/A
Color Wheel, Vina-Glo Latex Enamel 480, Int.	66	38.1± 2	300-500	Various Substrates	N/A	8 hrs.	N/A
Cloverdale Paint, 032 Super Eggshell Latex, Int.	125	38	350-450	Drywall, wood, masonry	N/A	N/A	N/A
Rodda, Unique II latex enamel, Ext./int.	137	34± 2	145	Drywall, wood, masonry	N/A	3 hrs.	N/A
Sherwin Williams, A-100 Latex Satin, A8 series, Ext.	112	33± 2	350-400	Various Substrates	N/A	4 hrs.	N/A
ICI Dulux, Dulux Ultra Eggshell acrylic 1403, interior	112	41± 1	400	Various Substrates	N/A	3 hrs.	N/A/1 year
Vista, 8200 Carefree Velvasheen, Int.	148	43	300-400	Various Substrates	N/A	4-6 hrs.	N/A

(CONTINUED)

Nonflats (Low-Gloss) - from 150 g/l to 50 g/l (22 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70deg./ Shelf Life
Kelly-Moore, SatN-Sheen Latex 1610, Int.	143	36	300-400	Wallboard, masonry, wood, hardboard	N/A	24hrs.	N/A
PPG, Speedhide Eggshell Latex 6-411, Int.	70.8	37.4± 2	400-500	Various Substrates	N/A	4 hrs.	N/A
Parker Paint, Pro Satin Latex 5750, Int.	127	35.5± 1.5	300-350	Various Substrates	N/A	4-8 hrs.	N/A
Miller, Pro-Jex Eggshell 1880, Int.	56	34.4	300-350	Various Substrates	N/A	6 hrs.	N/A
Kwal-Howells , Accu-Tone Latex Eggshell 1903, Int.	88	33.62	250-375	Various Substrates	N/A	4 hrs.	N/A
Dunn-Edwards, Tuff-Floor Porch & Deck 810, Int./ext.	145	37	75-200	Wood porches and decks	N/A	4 hrs.	N/A
Target Coatings, Emtech U9300 top coat acrylic finishes	60	32	333	Interiors	UV resistant	N/A	N/A
Average Summary of Samples	**108.4**	**35.6**	**346**			**6.8 hrs.**	**N/A/ 1.7 years**

N/A= Not Available

Nonflats (Gloss) - 50 g/l and less (3 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Fuhr, ZVOC acrylic Topcoat 5600	0	37	N/A	Wood substrate	N/A	30 min.	N/A
Du Pont, Imron 230ZV polyutethane enamel,	0	77	412	Metal finishing, harsh chemical environments (limited distribution)	N/A	6-8 hrs.	3hrs./9 months
Sierra Performance Coatings S39 Gloss	0	38	214	Wide variety of painted or primed surfaces	N/A	2-4 hrs.	N/A/1 year
Average Summary of Samples	**0**	**50.7**	**313**			**3.5 hrs.**	**3 hrs./10.5 months**

N/A= Not Available

Nonflats (Semi-Gloss) - 50 g/l and less (14 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Coronado, Air Care Acrylic Eggshell 1230-1 Int.	0	32.5	450	Various Substrates	N/A	4 hrs.	N/A
Coronado, Air Care Acrylic Semi-gloss 926 Int.	0	39	450	Various Substrates	N/A	4 hrs.	N/A
Earthtech semi-gloss	0	33.87	425	Various Substrates	N/A	4 hrs.	N/A
Frazee 032Envirokote interior semi-gloss	20	30.6	200-400	Various Substrates	>600	18 hrs.	N/A/2 years
Kelly-Moore, 1520 Enviro-cote Int.	0	36	300	Wall board, masonry, trim,	N/A	4 hrs.	N/A
Kelly-Moore 1510 Int.	0	39	300	Wall board, masonry, trim,	N/A	4 hrs.	N/A
Sherwin Williams Harmony B10 semi-gloss Int.	0	40± 2	466	Various Substrates	N/A	4 hrs.	N/A
BenjaminMoore Pristine Eco Spec semi-gloss 224 Int.	0	36	400	Various Substrates	Good	2 hrs	N/A
BenjaminMoore Pristine Eco Spec Interior eggshell 223	0	36.4	400	Various Substrates	Good	2 hrs	N/A
Union Tank, Lithcote Aqua-flex.	0	52	278	Hopper car lining	N/A	N/A	N/A
Color Wheel, Low VOC Latex 5520, Int.	1	36.6	300-500	Various Substrates	N/A	4 hrs.	N/A
Color Wheel, Low VOC Latex 5500	1	32.5± 2	300-500	Various Substrates	N/A	4 hrs.	N/A
California, Latex Semi-gloss 663XX, Int.	35	39	250-350	Various Substrates	N/A	2 hrs.	N/A
Fuhr, ZVOC Acrylic Topcoat 5600 Int/Ext	0	37	N/A	Wood substrates	N/A	30 min.	N/A
Average Summary of Samples	**4**	**37.2**	**375**			**4.3 hrs.**	**N/A/ 2 year**

N/A= NOT AVAILABLE

Nonflats (Low-Gloss) - 50 g/l and less (7 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Earthtech Premium Satin Paint Int.	0	35.47	425	Various Substrates	N/A	4 hrs.	N/A
Frazee 029Envirokote: interior eggshell	5	49.7	300-400	Various Substrates	Over 1000	18 hrs.	N/A/2 years.
Sherwin Williams Harmony eggshell interior B9	0	39± 2	450	Various Substrates	N/A	4 hrs.	N/A
Color Wheel, Low VOC latex 5540, Interior	1	36.5± 2	300-500	Various Substrates	N/A	4 hrs.	N/A
Kelly-Moore, 1510 Enviro-cote acrylic enamel, Int.	0	39	300	Wallboard, plaster, masonry, trim	N/A	4 hrs.	N/A
Epmar, Kemiko Col-R-Tone III Acrylic Urethane Int./Ext.	<50	60	300-400	Various Substrates	N/A	1 hr.	N/A
Fuhr, ZVOC White Acrylic Topcoat 5600 Int./Ext.	0	37	N/A	Wood	N/A	30 min.	N/A
Average Summary of Samples	**8**	**42.4**	**379.2**			**5.1 hrs.**	**N/A/ 2 years**

N/A= NOT AVAILABLE

Quick-Dry Primer, Sealer, Undercoater – 100 g/l and less (4 Samples)

(Numerous coatings listed in Primer, Sealer, Undercoater meet the dry time and gloss requirements of a Quick-Dry PSU)

Coating Company, and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage	Recommended Substrate/exposure	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
ADCO PUR-100 Sealant	80	N/A	N/A	Pre-painted Plastic, metals, glass, aluminum	300lbs/in. tare	24 hrs	N/A/1 year
ADCO PUR-200 Sealant/ Adhesive	76	N/A	N/A	Pre-painted Metals, glass aluminum and plastic	300 psi Tensile strength	24 hrs.	N/A/9 months
Target Coatings, Emtech 8800 sealer	50	40	375	Wood or paneling, commercial architectural finishes, yacht interior	Non-combustible	1 hr.	N/A/1 year
Resene, D45 Quick Dry Acrylic primer undercoater	64	N/A	12.5 sq. meters/ litre @35 microns	Various Substrates	N/A	2-4 hrs.	N/A
Average Summary of Samples	**67.5**	**40**	**N/A**			**13 hrs.**	**N/A / 11 months**

N/A= NOT AVAILABLE

Roof Coatings- 250g/l and less (7 Samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal)	Recommended Substrate/exposure	Durability Qualities	Pot Life @70 deg./ Shelf Life
Andek Polaroof SP W/B, 1	0	N/A	100/1-1/4-1-3/4 gal @20mils	Dry, clean roof surfaces	4mm indent on impact resistance	N/A/ 1 year
Andek Polaroof AC, 1	10	N/A	100/3 gal @48mils	Dry, clean roof surfaces	4mm indent, pass	N/A/1 year
Andek Polaroof Firegard, 1	0	N/A	120/gal @16mils	Dry, clean roof surfaces	Impact resistant.	N/A/ 1 year
Andek Polaroof RAC, 1	200	N/A	100/2-3 gal @30mils	Dry, clean roof surfaces	Puncture resistant up to 120 psi	N/A / 1 year
Andek Polaroof RAC-OZ, 2	160	N/A	50/gal @30mils	Dry, clean roof surfaces	Shore ‘A’ Hardness 65	6 hrs./1 year
Andek Silver Film, 1	150	N/A	360/gal @3mils	Dry ,clean roof surfaces	Softening point 240F	N/A/ 2 years
Color Wheel, Tropicoat Roof Paint 340, 1	61	38.3± 2	200	Residential, architectural, commercial and light industrial applications for masonry roofs	Alkali and efflorescence resistant	N/A
Average Summary of Samples	**83**	**38.3**	**N/A**			**6 hrs. / 1.2 yr**

N/A= NOT AVAILABLE

High Temperature IMC - 420g/L and less (14 Samples)

Coating Company and Product Name, components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended Substrate/ exposure	Temperature Resistance (°F)	Pot Life @70 deg./ Shelf Life
Dampney, Thurmalox 70C, 1	413	52	278	Stainless steel piping , vessels, and equipment	700	N/A/1 year
Dampney, Thurmalox 200C, 1	414	42	219	Stacks, reformers, furnaces, compressors, piping, process vessels, heater, boiler casings, engines, pumps	500	N/A/1 year
Dampney, Thurmalox 210C, 2	381	30	160	Stacks, refinery equipment, reformers, furnaces, turbines, engines, Pumps, manifolds, hear exchangers	500	N/A/1 year
Dampney, Thurmalox 215 Primer, 2	215.7	67	332	Insulated hot equipment and piping and equipment exposed to severer thermal shock to 450°	450	2 hrs./1 year
Dampney, Thurmalox 216 Topcoat, 2	316.4	62	332	Insulated hot equipment and piping and equipment exposed to severer thermal shock to 450°	450	2 hrs./1 year
Dampney, Thurmalox 218 Primer ,2	263	61	329	Metal surfaces, equipment exposed to wet-dry-wet cyclic conditions from ambient to 450°	450	2 hrs./1 year
Dampney, Thurmalox 219 Topcoat ,2	312	56	329	Metal surfaces, equipment exposed to wet-dry-wet cyclic conditions from ambient to 450°	450	2 hrs./1 year
Dampney , Thurmalox 225HB, 1	333	60	320	Stacks, Manifolds, mufflers, hot piping, process vessels, refinery equipment, furnaces, ovens	1000	N/A/1 year
Dampney, Thurmalox 230C, 1	371.5	56	300	Stacks, Manifolds, mufflers, hot piping, process vessels, refinery equipment, furnaces, ovens	1000	N/A/1 year
Dampney, Thurmalox 245C, 2	395.5	50	278	Stacks, breechings, boiler casings, exhausts, hear exchangers, heaters, crackers, furnaces	1000	8 hrs/6 months
Dampney, Thurmalox 260C, 1	381	60	350	Provides an early warning indicator of process vessel overheating due to gas bypassing or refractory failure	500	N/A/1 year
Dampney, Thurmalox 280C, 1	419	38	203	Stacks, breechings, heaters, cracker, reformers, kilns, ovens, compressors, engines, piping, pumps	1200	N/A/1 year
Dampney, Thurmalox 2600, 1	371	56	300	Interior walls of boilers, furnaces, breechings, ducts, and stacks. Dry scrubbers	600	N/A/1 year

(CONTINUED)

High Temperature IMC - 420g/L and less (14 Samples)

Coating Company and Product Name, components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended Substrate/ exposure	Temperature Resistance (°F)	Pot Life @70 deg./ Shelf Life
Dampney, Thurmalox 2804, 1	155	28	150	Stacks, breechings, boiler casings, refinery equipment, reformers, kilns, ovens, engines, manifolds	1000	N/A/1 year
Average Summary of Samples	**338.7**	**51.3**	**277.1**			**3.2 hrs / 1 years**

N/A= NOT AVAILABLE

Primer, Sealer, Undercoater – 200g/L –100g/L (4 samples)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Morwear, Primer Xcel Acrylic Stain Blocking Primer 2098 Int/Ext	<200	39.76	212	Wood, masonry, stucco, brick, non-ferrous metal	Stain blocking	4 hrs.	N/A
Columbia, Premium Pro Latex Enamel undercoater 02-735 Int.	120	37	197	Interior drywall, masonry	Must be topcoated	2-4hrs.	N/A/2 years
Parker Paint, Stain Resistant Primer 1833 Acrylic latex Ext.	128	31 ± 1.5	165	Concrete, masonry, stucco	N/A	4 hrs.	N/A
Insl-X, Aqualock W/B primer, sealer, stain killer AQ-0500	118	43	229	Industrial applications over painted surfaces, top or mid coat	Cross Hatch adhesion- 5	N/A	N/A/1 year
Average Summary of Samples	**141.5**	**37.7**	**200.8**			**3.7 hrs**	**N/A / 1.5 years**

N/A= NOT AVAILABLE

Primer, Sealer, Undercoater - 100 g/l and less (23 samples)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Epmar, Kemiko Clear Acrylic Urethane 1	<50	30	300-400	Concrete, plaster, wood, FRP, GFRC, metals	Stain resistant	1 hr.	N/A
Color Wheel, Ti-Guard Sealer 430, Interior Flat	98	28.5± 2	146	Wall board, plaster, masonry, stucco, wood, plywood	Interior use only	4 hrs.	N/A
Color Wheel, WaterBorne Undercoat 8300, Interior	73.09	37± 2	210	Wall board, plaster, masonry, stucco, wood, plywood	Excellent enamel holdout	1 hr.	N/A
Columbia, Materpiece Ary-prime 5-200,1	84	40	360	Various substrates	Stain blocking	1 hr.	N/A/2 years
Rodda, Heavy Body Scotseal, Interior	87	39± 2	330	Primer under alkyd or emulsion finishes on drywall	N/A	2-3 hrs.	N/A
Sherwin Williams, PrepRite 200 latex primer, Int.	86	28± 2	400	Drywall, masonry, concrete,	N/A	4 hrs.	N/A
Kwal-Howells, Pro-Finish Acrylic primer 5860 Int./ext.	77	42.7	250-350	Wood, concrete, plastic, hardboard, metal, drywall	Alkali Resistant	4 hrs.	N/A
ICI Dulux, Ultra-Hide PVA primer/sealer 1030, int.	96	26± 1	40	Drywall, concrete block, brick	N/A	2 hrs.	N/A/1 year
ICI Dulux, Dulux Pro Acrylic Primer 2000, Exterior	95	50± 1	300-500	Exterior wood, concrete , masonry, non-ferrous metal	Mildew resistant	1 hr.	N/A/1 year
ICI Dulux, Ultra Hide Aquacrylic Gripper 3210, Int./Ext.	95	50± 1	300-450	Various substrates	Moisture and alkali resistant	1 hr.	N/A/1 year
Sherwin Williams Harmony primer int.	0	33± 2	450	Masonry, drywall, concrete, plaster	N/A	4 hrs.	N/A
Sherwin Williams, Latex Primer A-100 Ext.	89	36± 2	350-400	Wood and plywood	Mildew Resistant	4 hrs.	N/A

(CONTINUED)

Primer, Sealer, Undercoater - 100 g/l and less (23 samples)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
ICI Dulux, Ultra-Hide Aquacrylic GRIPPER 3210 Int./Ext.	95	50± 1	300-450	Wood, masonry, Previously painted surfaces	Stain Blocking	1 hr.	N/A/1 year
Surface Protection Industries, Acry Tone 90-Line	100	N/A	N/A	N/A	N/A	N/A	N/A
Pittsburgh Paints, Seal Grip Acrylic Latex Stain Blocking Primer Int/Ext	96	37.8 ±2	200-250	Aluminum, masonry, stucco, wallboard, wood, plaster	Stain Blocking	1 hr	N/A
Frazee Paint, 172 Grip-N-Seal Acrylic primer Int/Ext.	96	33	100-300	Various substrates	Stain blocking	2-3hrs.	N/A
Morwear Quick Grip Quick Dry Enamel Undercoater Int/Ext	91	40.44	200-400	Various Substrates	N/A	2 hrs.	N/A
Zinsser, Bulls Eye 123 W/B Primer sealer	100	N/A	400-450	Various Substrates	Stain killer	N/A	N/A
Glidden, Ultra-hide 250 Gripper Stain Killer	97	49	68	Various Substrates	Stain Killer	1 hr.	N/A
Columbia, Masterpiece Acry-Prime 05-200 Int/Ext	84	41 ±1	540	Various Substrates	Stain Blocker	1 hr.	N/A/2 years
Color Your World, 8791 Acrylic Blokker Int/Ext	97	49	68	Wood, plaster, drywall, concrete, stucco ,masonry	Stain Blocker	2 hrs.	N/A
Frazee 168 Prime+Plus Acrylic primer/sealer/stain killer Int/Ext.	58	44.6	100-350	Various substrates	Stain killer , resistant to pH 13	2-3hrs.	N/A
Sherwin-Williams, PrepRite ProBlock Latex primer sealer B51 Int/Ext	99	36 ±2	533	Various Substrates	Seals out solvent sensitive stains	1hr as primer 4hrs stain sealer	N/A

Average Summary of Samples	**84.5**	**39.1**	**304.3**			**2.1 hrs**	**N/A / 1.3 years**

N/A= NOT AVAILABLE

Stains - 350g/l to 250 g/l (1 sample)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Resistance to UV exposure	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Benjamin Moore, Moorewood Siding Stain 089, 1	<350	30	200-400	Interior rustic paneling, beams, and rafters	Mildew resistant	3 hrs.	N/A
Average Summary of Samples	**350**	**30**	**300**			**3**	**N/A**

N/A= NOT AVAILABLE

Stains - 250g/l and less (13 samples)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Resistance to UV exposure	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Cloverdale, Acrylic Wood Stain 066, Exterior	103	36	200-500	Wood	N/A	2 hrs.	N/A
Columbia, Woodtech Solid Color Latex Stain 09-400	71	34	290	Wood siding, hardboard, brick, concrete, aluminum	N/A	2 hrs.	N/A/2 years
Kwal-Howell, Rustic wood 100% acrylic solid color 6200 Ext.	114	30.6	200	wood siding, beams, clapboard, hardboard, shakes,	N/A	4 hrs.	N/A
Porter, Wood Guardian Acrylic 1919, Int./ext.	108	26± 2	300-400	Wood siding, trim, shakes, shingles, fencing	N/A	4 hrs.	N/A
Sherwin Williams, ProMar Acrylic Latex Stain A16, Ext.	97	32± 2	200-400	Wood, sawn lumber, plywood, shakes, shingles	N/A	4 hrs.	N/A
Fuhr, ZVOC Universal Stain 155, Interior	0	14	N/A	Any wood surface	N/A	20 min.	N/A
Fuhr, SVOC exterior waterbased 5800	0	14.3	N/A	Furniture, molding, millwork, cabinets	N/A	20 min.	N/A
Vista Paint, 3000 Acribond Ext.	97	40	300-400	wood, masonry, previously painted surfaces	N/A	4-6 hrs.	N/A
ICI Dulux, Wood Pride Solid Color Stain 2600	139	28± 1	350-450	Siding, clapboard, shakes, shingles, beams, fences	Provides UV protection	4 hrs.	N/A/1 year
ICI Dulux, Woodpride W/B semi-Transparent Stain 2610 ext.	148	24± 1	150-250	Above ground exterior bare wood, siding, shingles, etc.	UV protection	1 hour to touch	N/A/1 year

(CONTINUED)

Stains -250g/l and less (13 samples)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended Substrate/ exposure	Resistance to UV exposure	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Monopole, Monochem Aquaseal 2 for wood 3500	0	11.4	60-250	Siding, rim, fencing plywood, shakes, shingles, lumber	N/A	N/A	N/A
Okon, Weatjer Pro OK-710,	67	N/A	50-150	Decks, fencing, shakes, siding	N/A	2 hours to touch	N/A
Vista paint, WN11 Interior wiping Stain	245	19	101	Interior decorative wood	N/A	2-3 hrs.	N/A

Average Summary of Samples	**91.5**	**25.8**	**254.2**			**2.6 hrs.**	**N/A / 1.3 years**

N/A= NOT AVAILABLE

Quick Dry Enamels - 400g/l to 150 g/l (5 sample)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Gloss Characteristics	Drying time to touch	Drying time to recoat	Pot Life @70 deg../ Shelf Life
Vanex, Inc., Breakthru Satin-Clear	249	N/A	N/A	N/A	N/A	N/A	N/A
Vanex, Inc., Breakthru Sat-Wrtirnblk	242	N/A	N/A	N/A	N/A	N/A	N/A
Vanex, Inc., Breakthru GLS-Pastel BS	215	N/A	N/A	N/A	N/A	N/A	N/A
Ellis, Hy-Lux W/B Ind. Ena. Yellow 1219	250	30-32	165	80+	30 min.	1-2 hrs.	N/A
Ellis, W/B Ind. Acry. Ena. Med. Green 1225	244	30-32	165	80+	30 min.	1-2 hrs.	N/A

Average Summary of Samples	**240**	**31**	**165**			**1.5 hrs.**	**N/A**

N/A= NOT AVAILABLE

Waterproofing Sealers, Wood- 250g/L and less (1 sample)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended Substrate/ exposure	Drying time to touch	Drying time to recoat	Pot Life @70 deg../ Shelf Life
Monopole, Monochem Aquaseal 2 for wood 3500	0	11.4	60-250	Siding, rim, fencing plywood, shakes, shingles, lumber	N/A	N/A	N/A
Average Summary of Samples	**0**	**11.4**	**155**			**N/A**	**N/A**

N/A= NOT AVAILABLE

Traffic Paint - 150 g/l and less (2 sample)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended Substrate/ exposure	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Pervo Paint Company, 6103 Yellow L/F RD Acetone-Based Traffic	150	N/A	500	Streets, curbs	No cracking on ½" mandrel	N/A	N/A
Advanced Protective products, Acrylic latex traffic paint	68	N/A	200-400	macadam, wood, asphalt, concrete, brick	Highly durable	4 hrs.	N/A
Average Summary of Samples	**109**	**N/A**	**400**			**4 hrs.**	**N/A**

N/A= NOT AVAILABLE

Shellac, Clear-730g/L and less (1 sample)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Zehrung Corp., Shellac Solution 10003 Clear	609	35.5	N/A	N/A	N/A	N/A	N/A
Average Summary of Samples	**609**	**35.5**	**N/A**			**N/A**	**N/A**

N/A= NOT AVAILABLE

Clear Brushing Lacquers-680 g/L and less (2 samples)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Trinity Coatings, Nitro LC-530 Water White Clear Lacquer Series	550	15.8 ± 2	118	High quality furniture, cabinets	Non-yellowing	30-45 min.	N/A
Trinity Coatings, Nitro LS-520 Water White Lacquer Sanding Sealer	550	12 ±2	66	Apply to bare wood on furniture, pianos, cabinets	Non Yellowing	25-45 min.	N/A
Average Summary of Samples	550	13.9	92			36.3 min.	**N/A**

N/A= NOT AVAILABLE

Pigmented Lacquers-550 g/L-275 g/L (1 sample)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Frazee, Flat White Lacquer 714	550	28.08± 5	150	Dry clean surfaces	N/A	N/A	N/A
Average Summary of Samples	550	28.08	150			**N/A**	**N/A**

N/A= NOT AVAILABLE

Rust Preventative Coatings- 100g/L and less (1 sample)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Advanced Protective Products Rust Knock Out	30	N/A	300	Directly over rust, bare metal or painted metal	Corrosion resistant	2-3 hrs	N/A
Average Summary of Samples	30	N/A	300			2-3 hrs	**N/A**

N/A= NOT AVAILABLE

A P P E N D I X C

IMPLEMENTATION GUIDANCE DOCUMENT, AVERAGING COMPLIANCE OPTION

The Implementation Guidance Document has been updated to reflect changes made in Proposed Amended Rule 1113.

IMPLEMENTATION GUIDANCE DOCUMENT

RULE 1113 - ARCHITECTURAL COATINGS

AVERAGING COMPLIANCE OPTION

December 2002

South Coast Air Quality Management District
21865 East Copley Drive
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Disclaimer

This guidance document is intended solely to help regulated entities comply with the Averaging Compliance Option in Rule 1113 – Architectural Coatings. This guidance document is not meant to be a substitute for the actual text of any rule. A manufacturer must comply with all requirements of Rule 1113 – Architectural Coatings and other applicable rules.

Acknowledgements

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Section 1: INTRODUCTION

Rule 1113 - Architectural Coatings was originally adopted by the South Coast Air Quality Management District (District) on September 2, 1977, to reduce the volatile organic compound (VOC) content of architectural coatings and emissions from their applications. This rule applies to manufacturers, distributors, and end-users of architectural coatings. The purpose of this rule is to limit the VOC content of architectural coatings used in the District.

The District amended Rule 1113 – Architectural Coatings on November 8, 1996, resulting in the adoption of lower limits for several coating categories. In addition to the limits, the District also adopted the Averaging Compliance Option (ACO) as a flexibility option in the rule by working extensively with members of the architectural coatings industry. In the November 8, 1996 amendments to Rule 1113, the ACO included only the Flats category. These amendments were submitted as a part of the State Implementation Plan (SIP), and were approved by the California Air Resources Board (CARB) and the United States Environmental Protection Agency (EPA). Subsequently, to meet its commitments in the Air Quality Management Plan, the District again amended Rule 1113 on May 14, 1999. As part of this amendment, the ACO was extensively reworked to streamline its implementation. Additionally, numerous categories were added to the ACO to provide additional compliance flexibility with the future limits.

During the development of this guidance document, questions have been raised relative to maximum VOC content, or a VOC ceiling limit specific to coatings included in a typical averaging program. Although not specifically addressed under the current rule, it was staff's intent to have the VOC limits in existence before the amendments to serve as the maximum VOC content for those categories. Thus there is no backsliding in emissions reductions. Adherence to the ceiling limits will also help with the implementation consistency of the statewide averaging program.

Subsequent discussions between CARB and the District have resulted in an agreement relative to specific ceiling limits. An exception to this agreement exists for the category of Quick Dry Primer/Sealer/Undercoaters. Furthermore, the District has committed to revising the averaging implementation guidance document with CARB to reflect a statewide averaging program.

The established ceiling limits for the following categories of coatings are intended to provide manufacturers enough flexibility to meet the lower VOC limits without exceeding limits that have been in effect in California for many years. Any coating manufacturer wishing to utilize the ACO in Rule 1113 must not exceed the ceiling limit listing the maximum allowable VOC content for any of the averaging categories identified.

Table 1

Averaging Category	VOC Limit (grams/liter) Effective 1/1/03	VOC Limit (grams/liter) Effective 1/1/04	Ceiling Limit or Maximum Allowable VOC Content (grams/liter)
Flat	100[1]		250
Nonflat	150		250
Floor	100		400[2]
Industrial Maintenance		250	420
Primer, Sealer, Undercoater	200		350
Quick Dry Primer, Sealer, Undercoater	200		350[3]
Quick Dry Enamel	250		400
Roof	250		250
Rust Preventative	400		400
Specialty Primers			350
Stains	250		350
Waterproofing sealers	250		400

[1]This limit for flats was effective on 7/1/01.
[2]This ceiling limit is consistent with the National VOC Compound Emission Standards for Consumer and Commercial Products.
[3]This ceiling limit is for those manufacturers that previously submitted an annual report under the Quick Dry Primer, Sealer, and Undercoater category exemption is 450 g/l.

1.1 What is the ACO?

The ACO allows a manufacturer to average, on a volume-weighted basis, the VOC contents of coatings and allows them to distribute for use within the District, coatings that have a VOC content higher than the applicable limits, but not higher than the ceiling limits listed in Table 1 of this document. This provides compliance flexibility and significantly reduces the overall economic impacts on the manufacturer. The goal is to provide an enforceable alternative approach, which provides flexibility to the manufacturer and achieves emission reductions without limiting product choices/options. The District published this guidance document as a compliance guide for manufacturers interested in utilizing the ACO.

1.2 What is the purpose of this guidance document?

The purpose of this compliance guide is to help a manufacturer who is interested in using the ACO with the design and implementation of their averaging program. It explains the requirements of the ACO in terms of: how to prepare and submit a program demonstration; what records must be retained and made available to the District; what reports are required; how to renew a program; and what happens if a violation occurs.

1.3 How is this guidance document organized?

This guide is divided into three major sections and an Appendix section. Section 1 introduces you to this guide and discusses the background and potential benefits of the ACO. Section 2 provides an overview of requirements and suggestions for designing and implementing a program under the ACO. Section 3 discusses other issues related to the ACO, including program monitoring, the District's penalty program, and fees associated with this option. The Appendix section contains sample programs, sample records, a flowchart for managing an averaging program, and copies of applicable District rules.

1.4 What are the benefits of using the ACO?

The main benefit to a manufacturer is the retention of certain product lines, and therefore, lowering the overall cost of reducing the VOC emission from categories included in the provision. Using the ACO allows required emission reductions to be achieved more cost-effectively, by providing flexibility for a manufacturer to choose the product mix that will best comply. Research and development efforts can be focused on reducing VOC contents wherever reductions would be most feasible. This allows the manufacturer to greatly reduce the number of products that need to be reformulated, and allows it to choose the product lines it wishes to retain, while achieving equivalent emission reductions.

Section 2: HOW TO DESIGN AND IMPLEMENT AN ACO PROGRAM?

The basic objective of any manufacturer's ACO program is to manage the distribution of products selected for averaging (during each compliance period) and for use in the District to ensure that actual emissions from all such products, in aggregate, do not exceed allowable emissions under applicable limits, and to demonstrate compliance in accordance with the averaging equation and other requirements of the averaging provision in Rule 1113. The following subsections discuss the steps a manufacturer might take in setting up and managing an ACO program.

2.1 How does a manufacturer determine if it can utilize this option?

To use the ACO successfully, a manufacturer must be able to distribute sufficient volumes of products with VOC contents below applicable limits, so as to offset the excess emissions from products with VOC contents above the limits, not to exceed the ceiling limit listed in Table 1 of this document. Averaging will work best for a manufacturer who offers multiple products in categories subject to averaging, across a range of VOC contents—including products that are (or can be reformulated) below applicable VOC content limits. To determine whether you can use this option, do the following:

(1) Determine how product volumes distributed for use in the District can be verified. If volume tracking is not possible, do not use the ACO.
(2) Review the categories subject to averaging.
(3) List all products offered in those categories.
(4) Assemble the data needed to calculate actual emissions from the products during a recent period (using the averaging equation given in Appendix A to Rule 1113).
(5) Calculate allowable emissions using the same data and applicable limits.
(6) If actual emissions are not greater than allowable emissions, you would be able to use averaging (assuming you can maintain consistent proportional distribution of all products).
(7) If actual emissions are greater than allowable emissions, you would not be able to use averaging unless it would be feasible to do one or more of the following (as necessary to ensure that actual emissions would not be greater than allowable emissions):
    (a) reformulate products to reduce VOC contents
    (b) eliminate some products with VOC contents above limits
    (c) reduce the distribution volume of products with VOC contents above limits

(d) expand distribution volume of products with VOC contents below limits. (For the initial program submission, this would require a detailed explanation as to how a manufacturer plans to expand the volume of super-compliant products, since past distribution volume would not be a reasonable support).

Before deciding to proceed with a program, however, the manufacturer should carefully examine all requirements of the ACO, and be assured that full compliance can be guaranteed.

2.2 What kind of records will a manufacturer need for using the ACO?

For the ACO, the manufacturer must identify and describe all specific records to be used in calculating emissions for the program, and provide a detailed explanation as to how those records will be used by the manufacturer and how they can be used by the AQMD to verify compliance with the ACO. The validity of the accounting system that will be used to track distribution for use in the District is an essential element for the approval of program. A manufacturer may choose to use a variety of records to track volume and demonstrate compliance. These include, but are not limited to, *distribution records (shipping manifests, bills of lading, etc.), point of sale receipts, invoices to local distributors, composition reports, production batch tickets, computer summaries of the data with paper records available for detailed information, and records of VOC calculations*. For demonstration purposes regarding the program submitted, the District requires that data be presented in an electronic format compatible with PC based operating systems. Where possible, the District also requests that any other records necessary for tracking purposes or plan validation be available in an electronic format. for ease of review.

2.3 How would a manufacturer track volume of product sold or distributed for use in the District?

The most efficient method for tracking volume of product sold or distributed for use in the District is to record distribution or sales records by ZIP codes located within the District. Some manufacturers have suggested to track volume distributed at the point where a manufacturer loses control of the product, which may be outside of the District. Those manufacturers interested in using data from beyond the District are encouraged to work with AQMD staff prior to submittal of a program to ensure the complete understanding of the tracking and accounting mechanism. However, these manufacturers are also encouraged to modify their existing volume tracking mechanism to incorporate a method that accounts for shipments to or sales within ZIP codes located in the District. All enforceable records shall be maintained and made available for inspection for at least three years after the end of the compliance period.

It should be reiterated that the ACO relies on the principle of averaging emissions from products sold and consumed in the District. Therefore, a manufacturer's eligibility to participate in the ACO will strictly depend on the manufacturer's ability to demonstrate that its product distribution mechanism lends itself to adequately tracking any product sales or distribution for use in the District for local consumption, as well as accounting for products being re-routed, imported or exported out of the District.

Recognizing that different manufacturers have different markets and distribution mechanisms, alternatives that allow statewide or national distribution of products included in the averaging program may be allowed provided that an adequate demonstration can be made that the averaging requirements will be met. As one alternative, if a manufacturer is able to demonstrate that its statewide or national distribution of products included in its program mirror the distribution for use in the District, then it can ship the labeled containers statewide or nationwide, and utilize volume data for its program. As another example, if a manufacturer is able to demonstrate that the distribution of the products included in its program both within the District and nationwide are sufficient to meet the averaging requirements on both a District-wide and nationwide basis, then it can ship the labeled containers statewide or nationwide. However, these demonstrations must be supported by data showing that the proposed sales volumes of both high- and low-VOC products is feasible for the manufacturer proposing the averaging program. This data should include past sales or distribution records for all products (both high- and low-VOC), and should clearly illustrate distributions which are consistent with the projections in the program. The past data relied upon should be sufficient to establish the volume sold or distributed, and should be based on the most recent three years of sales or distribution records. In the case of new products introduced into the market within the past three years, sufficient sales or distribution data shall be available for staff to establish trends. Projection figures shall be supportable by data made available to the District.

2.4 When can a manufacturer start using this option?

An approved averaging program may be implemented at any time provided the program is submitted at least 6 months prior to the implementation date proposed in the program.

2.5 What requirements must a manufacturer meet?

The initial requirement is to submit a complete and approvable program to the District's Executive Officer at least six months in advance of the starting date of the compliance period specified in the program. The program may be implemented only after the Executive Officer approves the program in writing. General requirements for the program are given in Rule 1113 Appendix A, Section C. Also, you may want to review the sample programs appended to this guidance document.

2.6 What are the fees associated with the ACO?

Rule 306 – Plan Fees (included in the Addendum) dictates the fees associated with the submittal, modification, and renewal of the Averaging Program. The filing fee for initial submittal is currently $298.71, with additional fees of $89.59 per person per hour for the evaluation fee. The evaluation fee will be based on the total actual and reasonable time incurred by the District for evaluation of the program. Therefore, a clear, concise, and complete program submittal should result in overall, lower evaluation fees. Rule 306 – Plan Fees is regularly amended to reflect any increases in fees. Therefore, a manufacturer is encouraged to obtain the latest copy of Rule 306 from the District website (www.aqmd.gov) prior to submittal.

2.7 What happens between the submittal date and the approval/disapproval of a program?

Upon submittal of a program, the Executive Officer will review the program submittal for completion, and assess if it contains sufficient information and supporting material to verify compliance. The Executive Officer will either approve or disapprove a program within 45 days of the submittal, unless the applicant and the Executive Officer agree to an extension of time for the Executive Officer to take action. This situation would most likely occur if the Executive Officer deems that the submittal is not complete, and decides to work with the applicant towards obtaining additional information for a thorough evaluation and subsequent approval or disapproval. **The submitted program shall not be implemented until it is approved in writing by the Executive Officer**.

2.8 What are the elements of an approvable program?

At a minimum, a complete program submittal shall include all necessary information, so the Executive Officer will know what to expect from a manufacturer, which plans to operate under the ACO. Based on the elements of the program submittal, the Executive Officer and the manufacturer should be able to review and verify the volume of products for use in the District under the ACO and calculate emissions. In addition, a detailed discussion and explanation of the enforceable record relied upon for tracking volume for use in the District and calculating emissions, as well as a defined compliance period should also be part of the program submittal. A compliance period shall be no more than one year and no less than six months. Additionally, the manufacturer shall submit, as part of its first program submittal, a description of how it plans to comply with the labeling requirements.

The detailed demonstration of the program should clearly show that projected actual emissions will not exceed allowable emissions, using the equation included in Rule 1113, Appendix A, Section A. The additional information should also allow the Executive Officer to clearly make a determination as to the validity of the program. Additional information includes, but is not limited to: identification of each coating which is included in the program, and which exceeds the applicable VOC limit; the VOC content of each product in both grams per liter of coating, and grams per liter of material; identification and description of enforceable records (including samples of such records); a detailed explanation of the volume tracking mechanism for coatings both above and below the applicable VOC standard (including sufficient records to support projection figures); and a signed statement by the responsible party that all information submitted is true and correct.

A responsible party for a corporation is a president or vice-president of the corporation in charge of a principal business function, or a duly authorized representative.

A petition from the original responsible official to delegate authority to an authorized representative must be approved by the District.

A responsible party for a partnership or sole proprietorship is considered to be the general partner or proprietor, respectively.

2.9 How does a manufacturer choose the coatings to be included in its program?

Under the ACO, a manufacturer has the flexibility to choose any coatings (from allowable categories) for its program, so long as distribution of selected products can be managed to assure compliance. A manufacturer should not include in their program, coatings that exceed the applicable regulatory (less water and exempt solvent) VOC limits effective upon the date of the amendment.. Products with VOC contents below applicable limits may be added to the program at any time during the compliance period. You must, however, submit a written request for modification of the program, and receive approval from the Executive Officer, before adding any products with VOC contents above applicable limits. The Executive Officer will approve or disapprove a modification request within 45 days of its submittal.

For any coating in an approved averaging program, the sale or application of that coating manufactured after the ACO program has been approved and prior to or during the ACO compliance period, shall not constitute a violation until three years after the termination date of that program.

2.10 What reports are required?

For each compliance period, two reports to the Executive Officer are required, as described in Rule 1113 Appendix A, Section (D): an interim "mid-term" report, and a final report. The mid-term report is due within 45 days after the halfway date of the compliance period, although an extension of up to 15 days will be granted if requested in writing before the original due date. The final report is due within 60 days after the end of the compliance period; an extension of up to 30 days is available if requested in writing before the original due date. Both reports must be signed by a responsible party for the manufacturer, certifying that all information submitted is true and correct.

The mid-term report is for monitoring purposes only, and must include a detailed calculation of actual and allowable emissions for product volumes distributed under the program during the first half of the compliance period. Also, if actual emissions exceed allowable emissions at the time of the mid-term report, it must include an explanation of the actions that the manufacturer will take to ensure compliance by the end of the compliance period.

The final report will determine compliance status for the entire compliance period, and must therefore include a detailed calculation of actual and allowable emissions for all product volumes distributed for use in the District or sold under the program during the entire compliance period. The final report must also include updated information (if any) on the records that were used to calculate emissions, and certify that all records will be made available to the Executive Officer upon request.

The District requires that midterm and final reports be submitted in an electronic format compatible with PC based operating systems, preferably in a Microsoft ®Excel or similar software package.

2.11 Is there an emission quantification protocol a manufacturer can use?

Under the ACO, the emission calculations are straightforward, and can be done with a calculator using data that should be readily available to the manufacturer. District staff can also establish a spreadsheet in Excel or other formats and make it available to manufacturers. The information necessary for the calculations is easily obtained from formulation data sheets, Batchmaster or other electronic formulation software, or product data sheets, along with appropriate distribution records. The averaging equation, which defines both actual and allowable emissions, is included in Rule 1113 – Appendix A, Section (A), and all terms used in the calculation are also defined. If a manufacturer needs to better understand how to use the equation, District staff can meet with representatives and explain the calculation methodology in greater detail.

2.12 What are emissions related and non-emissions related violations?

An emissions related violation would occur if, at the end of the compliance period, the actual emissions are greater than the allowable emissions. This would constitute a separate violation for each day of the compliance period. Other emissions related violations could be, but not limited to, the misrepresentation of records used to verify compliance. Other examples include negligence or knowingly participating in activities that may result in emissions beyond the allowable emissions. Basically, any violation of the ACO, if it may lead to direct emissions of any air contaminant, or the Executive Officer is unable to verify the actual and allowable emissions or verify compliance will be considered an emissions related violation.

Non-emissions related violations are any other violations of the ACO that the participating manufacturer can demonstrate did not result in excess VOC emissions. Examples of these include, but are not limited to, inclusion of an inaccurate record or misstatement in the initial submittal, mid-term report, or final report, and then corrected at a later date, but which did not cause excess emissions. Other examples include labeling and late submittals of reports. However, intentional mis-labeling of product containers, falsification of records, and re-routing or exporting of low-VOC products would be considered a major violation.

2.13 How does a manufacturer know if it is potentially in violation of the ACO?

A manufacturer shall be able to determine if they are or could be in violation of the ACO at the end of the compliance period by simply tracking their actual emissions, based on sales during the compliance period. A manufacturer should try to balance their emissions on a monthly basis. However, since sales of architectural and industrial maintenance coatings are seasonal, with sales volume increasing in the summer months, it may be difficult for a manufacturer to completely balance the actual and allowable emissions on a monthly basis. At the mid-term, if a manufacturer's actual emissions are significantly greater than the projected actual emissions in the initial submittal, then the manufacturer should strongly consider taking immediate steps to ensure that a balance of emissions will be achieved, including terminating sales of the higher-VOC averaged coatings designated in the initial submittal, and increasing sales of super-compliant coatings. If a manufacturer waits for the last few months or weeks to reduce the sales of higher-VOC averaged coatings legally sold under the ACO, then the manufacturer could be taking on the risk of a violation. Since the current ACO does not contain a reconciliation section, any exceedance would be considered a separate violation for each day of the compliance period. Therefore, any emissions-related violation would result in significant penalties. The actual monetary amount shall be determined on a case-by-case basis, taking into account the severity of the violation, and shall be large enough to deter future violations.

2.14 Are there special labeling requirements under the ACO?

A manufacturer is required to include special labeling on any coating container included in their program that **exceeds the applicable VOC limit**.. These containers must display the following statement: “This product is subject to the averaging provisions of the SCAQMD Rule 1113” or a designated symbol. Currently the following symbol is acceptable to the Executive Officer and the manufacturers:

A

This symbol must be clearly displayed on the container, so an end-user or District inspector can easily determine that this product is included in a program, and is considered compliant. The symbol’s size shall be appropriate for the size of the text for VOC content information on the label, and shall be printed in ink near the VOC content information. A sample of the label shall be submitted by the applicant showing designated language or the symbol location and is subject to the Executives Officers approval. **Containers for compliant coatings should not be labeled.**

A manufacturer is encouraged to use the above-designated symbol only on products distributed for use in the District, since any container with the above-designated symbol, regardless where it is sold, must be accounted for in their mid-term and final reports. For example, a manufacturer may choose to ship a product with the special label outside of the District, however, the volume of product shipped for use outside of the District must be included in their program.

Several manufacturers have expressed concern about the special labeling required under the ACO, which could create the added burden of labeling for the District only. However, those manufacturers have also indicated that they could place the designated symbol on all containers shipped on a statewide or national basis. Manufacturers must account for all products in containers that carry the designated symbol. Thus, if containers carrying the designated symbol are shipped statewide or nationwide, the VOC averaging requirements must be met on a statewide or nationwide basis, respectively, as well as district-wide. The manufacturer must submit sufficient data in its written plan to allow the District to determine that the manufacturer’s statewide (or nationwide) distribution of products included in its program will be sufficient to meet the averaging requirements on a statewide (or nationwide) basis as well as district-wide, and that there will be adequate documentation (e.g., sales and/or shipping records) to allow verification that the averaging requirements are met. Alternatively, if a manufacturer is able to demonstrate that its statewide or national distribution of products included in its program mirror the distribution for use in the District, then it can ship the labeled containers statewide or nationwide, and utilize volume data for its program. Please review Section 2.3 for a detailed discussion of this tracking method.

If a manufacturer chooses to provide alternative labeling programs, the District will evaluate such alternatives, so long as the integrity of the enforceability is maintained.

Section 3: OTHER ISSUES

This section discusses options for modifying, renewing, or terminating an averaging program, and presents information on fees and penalties.

3.1 How can a manufacturer get approval to modify its program?

A manufacturer can request to modify its program at any time prior to the end of the compliance period. However, a manufacturer cannot modify the defined compliance period included in the program, and subsequently approved by the Executive Officer. The modification request must be in writing, and shall be approved or disapproved by the Executive Officer within 45 days from the date of submittal. Therefore, it is recommended that a manufacturer should not modify the approved program within the last 45 days of the compliance period to ensure that the Executive Officer can either approve or disapprove a modification prior to its implementation. A manufacturer only needs to modify the original, approved program if it wants to add non-compliant coatings. A modification to the program is not necessary if a manufacturer is adding only coatings that comply with the applicable VOC limit to the program.

3.2 Can a manufacturer renew its program from year to year?

A manufacturer can simply request a renewal by submitting a written renewal request. This submittal should include an updated program, which should meet all of the requirements for a new submittal. The renewal request will be considered conditionally approved until the Executive Officer denies or approves the renewal request. The evaluation process for the renewal will include a review of the mid-term and final reports from the preceding compliance period, as well as any other information requested by the Executive Officer. The Executive Officer will either deny or approve a renewal request within 45 days of the submittal of a final report. This review period may be extended by mutual consent between the manufacturer and the Executive Officer.

3.3 Can an approved program be terminated in the middle of a compliance period?

A manufacturer can terminate its program at any time by submitting written notification to the Executive Officer. Upon submitting the termination notice (the date of which is considered to be the termination date), the manufacturer must comply with all provisions of Rule 1113, including the applicable VOC limits in the Table of Standards. Within 60 days of the termination date, the manufacturer must submit a final report for the effective compliance period, demonstrating that actual emissions did not exceed the allowable emissions. In the case that actual emissions are greater than allowable emissions during the shortened compliance period, the manufacturer will be considered to be in violation for each day of that compliance period.

Furthermore, the Executive Officer may terminate a program if a manufacturer violates the requirements of the approved program and the Executive Officer determines that actual emissions exceeded allowable emissions at the end of the compliance period. The Executive Officer can also terminate an approved program if a manufacturer demonstrates a recurring pattern of violations and has failed to correct the violations.

3.4 What happens if actual emissions exceed allowable emissions during the compliance period? What can it do if it is in violation at the end of the compliance period?

If during the compliance period, a manufacturer concludes that its actual emissions are greater than allowable emissions, the manufacturer shall submit a request to modify the approved program and remove the designated coating(s) from the program, as well as their distribution and sales scheme. The manufacturer may also choose to add additional super-compliant coatings to the program, which would not require any notification to the Executive Officer. The manufacturer shall also discuss the potential violation with AQMD staff, and try to develop a mitigation program to correct the violation prior to the end of the compliance period.

In the case where correction is not possible within the time period remaining in the compliance period, the Executive Officer will take appropriate enforcement action. It is recommended that the manufacturer contact the AQMD staff and discuss the discovery of the potential violation, and any mitigation measures, including the purchase of sufficient emission credits to offset any excess emissions that may have occurred throughout the compliance period as a potential mitigation option. The value of the emission reductions credits varies based on the market availability and type. In cases where the Executive Officer is able to show an intentional violation, the penalty fees may be used for the architectural coatings program, including but not limited to, additional testing and research and development of lower-VOC coatings

3.5 What are the potential penalties for violating this provision and how will the District determine compliance?

The California Health & Safety Code allows the AQMD to collect up to $50,000 per day for a violation of air pollution control laws. However, the potential monetary penalties for violating the ACO will be determined on a case-by-case basis, and will be directly proportional to the amount of excess emissions, and the determination of intent and willfulness pertaining to the violation. As discussed in Section 2.3 of this guidance document, any fraudulent reporting, falsification of records, or intentional deceiving (re-routing or exporting) will result in the most severe penalty allowed under the California Air Pollution Control Laws. At the very least, the penalty will be large enough to deter future violations and allow the acquisition of VOC emission reduction credits in the open market to offset all excess emissions.

The intentional re-routing or exporting of low-VOC products from the District, and fraudulently reporting them as products sold in the District for the purpose of improving the manufacturer's allowable emissions and actual emissions ratio, is a prosecutable violation. In addition, high-VOC products imported from out of the District that are not accounted for in the mid-term or final-reports is also a prosecutable violation. For these types of violations, the Executive Officer will pursue the maximum penalty allowed under the California Air Pollution Laws. In order to protect itself, one option a manufacturer may choose is to notice subsequent distributors in writing that the shipment is for use in the District only, and that any re-routing or exporting of the product out of the District by the distributor without the knowledge or consent of the manufacturer constitutes a violation under Rule 1113.

The District has committed resources to conduct periodic audits of companies participating in the averaging program. The audit will include random testing of products taken directly from retail and wholesale distribution points of sale and a review of actual versus allowable emissions as demonstrated in the ACO program. Those manufacturer's found to be in non-compliance with their approved program will be subject to penalties and termination of an approved program.

3.6 Where does a manufacturer go for further assistance?

A manufacturer interested in learning more about the ACO should contact the VOC Rules team of the Planning, Rule Development, and Area Sources Section of the AQMD.

APPENDICES

SAMPLE PROGRAM

Clean Coatings Paint Co.
4907 W. Main St.
Los Angeles, CA 90004
Tel: (213) 555-1212 Fax: (213) 555-1212
www.cleancoatingspaintco.com

1 January 2003

South Coast A.Q.M.D.
21865 E. Copley Dr.
Diamond Bar, CA 91765

Attn: Executive Officer

RE: RULE 1113 AVERAGING PROGRAM SUBMISSION

The Clean Coatings Paint Company requests approval for the following averaging program, pursuant to Rule 1113 (c.)(6) and Appendix A. Enclosed is a written averaging demonstration with projections for a one-year compliance period from **1 July 2003** to **30 June 2004**. Included for your review is the following pertinent information:

1) *Submission by deadline (6 months prior to start of compliance period):* 1 Jan. 2003.

2) *Contact Information:*
   Norah Clean
   Vice President, Compliance Section
   Clean Coatings Paint Co.
   4907 W. Main St.
   Los Angeles, CA 90004
   Tel: (213) 216-3958, Extension 5555
   Fax: (213) 216-4457
   Email: Norah@ccp.com

3) *Coating Information*: The following coatings are included in the attached program spreadsheets:
   Those exceeding the most recent applicable VOC limit (but not exceeding the ceiling limit) defined in Rule 1113, as well as the grams of VOC/liter of coating, grams of VOC/liter material, and the designation of the coating category. Also included are the averaging coatings with VOC content lower than the limits defined in Rule 1113, with the applicable VOC/liter calculations.

4) *Demonstration:* Detailed demonstration showing that actual emissions will not exceed allowable emissions for the compliance period (using equation specified in Rule 1113, Appendix A, Paragraph (A)). Submitted on paper and electronically. Please see attached spreadsheets (and computer disk).
   i) Averaging Demonstration for 2003-2004 Compliance Period

ii) Distribution Data: 2002: California Statewide, 2002: SCAQMD Only
iii) Distribution Data: 2001: California Statewide, 2001: SCAQMD Only
iv) Graphic Summaries of spreadsheet data.

5) *Compliance:* 1 July 2003- 30 June 2004
Interim Report Due: 13 February 2004
Final Report Due: 29 August 2004

6) *The following records have been used in compiling the emissions data and subsequent reporting included in this Averaging Program, and are available for review by the Executive Officer upon Request (define if different from below). In the event of a Program Audit by the Executive Officer, review of the following materials should clearly delineate how the data was used in the compilation of the Averaging Program, and support the validity of the Program emissions data.*
i) Formulas
ii) Raw Material Data
iii) Material Safety Data Sheets for all products outlined in the Averaging Program.
iv) Equations used by computer to calculate VOC content and VOC material
v) Invoices showing each product/volume sold to each customer
vi) Monthly computer file summarizing invoice data
vii) Customer identification records providing shipping addresses

7) *Records used in calculating emissions for the program:*
i) Computer calculated VOC content and computer calculated VOC on a material basis for the products of interest.
ii) Summarized shipping records for products shipped into the District, and records of shipments made to the District by Zip Code. Point of sale records were used to support the volume data reported under the Zip Code listing.*

8) *Labeling:* An example of the treatment of our labels is attached. The approved symbol is placed next to the VOC content information. The symbol is placed on containers of coatings that exceed the regulatory VOC limit, which are primarily shipped and sold in the District.**

9) *Statement, Signature, and Date:*

I hereby certify that to the best of my knowledge, all information submitted above and in the following sheets is true and correct, and that all records are available to the Executive Officer upon request.

Signature: ____
Felix Clean, Chief Executive Officer, Clean Coatings Paint Co.

Date: 1 January 2003

* *Alternative Tracking Scheme: Volume distributed to the State or Nation may be used to track emissions. However, a manufacturer must demonstrate that the distribution and sales on a statewide or nationwide basis mirror the distribution for use in the District. The ration of high- and low- VOC products must be the same and supported by past sales or distribution records for all products in the program. In the case of new products, strong support needs to be included to validate the projected volume of products.*

** *Labeling of product containers with the specified symbol can also be shipped statewide or nationwide. The program submittal shall specify if the label is for District only or statewide or nationwide distribution.*

Averaging Demonstration
2003-2004 Compliance Period

2003-2004 AVERAGING DEMONSTRATION (ALL PRODUCTS)

CONFIDENTIAL

CALIFORNIA

				L				M	V	G	G x M	G x V x L
Product Code	Product Name	Coating Category	VOC LIMIT (g/L)	VOC LIMIT (lbs/G)	COATING VOC CONTENT (g/L)	COATING VOC CONTENT (lbs/G)	MATERIAL VOC CONTENT (g/L)	MATERIAL VOC CONTENT (lbs/G)	% Volume Solids VOC	Projected Volume (Gallons)	Projected Actual Emissions (lbs)	Allowable Emissions (lbs)
Q 6389	Quick-Shine	Enamel (QD)	250	2.08	396	3.30	395	3.29	100.0%	2,500	8,233	5,211
Q 1672	Speedy Alkyshine	Enamel (QD)	250	2.08	350	2.92	350	2.92	100.0%	295	861	615
F 6079	Super Flat	Flat	100	0.83	165	1.38	60	0.50	36.7%	134,000	67,028	40,999
S 1168	Ready Flat	Flat	100	0.83	115	0.96	43	0.36	35.8%	95,000	34,056	28,353
X 7471	Cover Up	Flat	100	0.83	80	0.67	30	0.25	44.1%	1,100	275	404
X 3693	Acrylic Cover Up	Flat	100	0.83	95	0.79	38	0.32	40.3%	800	253	269
F 40	Totally Flat	Flat	100	0.83	69	0.58	28	0.23	41.0%	2,500,000	583,576	854,523
F 30-9	Swift Coat	Flat	100	0.83	55	0.46	20	0.17	48.1%	420,000	70,029	168,420
F 2020	Fit Flat	Flat	100	0.83	58	0.48	18	0.15	37.1%	4,000	600	1,237
F 420	Smooth as Silk	Flat	100	0.83	25	0.21	18	0.15	52.1%	100,000	15,006	43,435
S 0122	Mask-It Graffiti Cover	Flat	100	0.83	35	0.29	15	0.13	37.1%	2,500	313	773
F9	Endura-Coat	Floor	100	0.83	200	1.67	100	0.83	41.6%	43,200	36,015	14,982
6054	Industrial Glow	IMC	250	2.08	400	3.33	420	3.50	100.0%	2,200	7,703	4,585
V 4567	Delux Industrial Coating	IMC	250	2.08	376	3.13	340	2.83	100.0%	1200	3,401	2,501
S 0201	Royal	Non-Flat	150	1.25	135	1.13	55	0.46	44.4%	487,500	223,531	270,675
W 9602	Lasting Color	Non-Flat	150	1.25	145	1.21	70	0.58	47.3%	170,000	99,208	100,554
T 1	Acri-Paint	Non-Flat	150	1.25	260	2.17	260	2.17	100.0%	16,000	34,681	20,008
T 2	Acri-Paint Deluxe	Non-Flat	150	1.25	250	2.08	250	2.08	100.0%	7,500	15,632	9,379
L 1379	Splendi-Chrom	Non-Flat	150	1.25	87	0.73	33	0.28	39.0%	61,500	16,920	29,994
G 65-1	Super Semi-Gloss	Non-Flat	150	1.25	80	0.67	40	0.33	46.3%	22,100	7,370	12,796
J 409	Soft Shell	Non-Flat	150	1.25	7	0.06	2	0.02	38.0%	3,200	53	1,521
F 818	Glossy Touch	Non-Flat	150	1.25	246	2.05	124	1.03	47.2%	705,000	728,804	416,123
Q 45	Quick-Coat	Non-Flat (QD)	250	2.08	350	2.92	350	2.92	100.0%	37,000	107,962	77,115
Q 19	Permagloss	Non-Flat (QD)	250	2.08	325	2.71	325	2.71	100.0%	11,000	29,804	22,926
T 001	All-Purpose Undercoat	P,S,U	200	1.67	365	3.04	365	3.04	100.0%	40,000	121,717	66,694
F 818	Celi-Kote	P,S,U	200	1.67	100	0.83	54	0.45	49.9%	80,000	36,015	66,561
F 310	Classic Seal	P,S,U	200	1.67	160	1.33	60	0.50	39.6%	107,300	53,672	70,848
C 911	Good to Go Primer	P,S,U	200	1.67	133	1.11	56	0.47	44.4%	170,000	79,366	125,852
C 525	First Step	P,S,U	200	1.67	130	1.08	50	0.42	42.6%	41,200	17,174	29,264
M 226	Rock Prime	P,S,U	200	1.67	120	1.00	50	0.42	41.4%	5,000	2,084	3,451
V 16795	Arti-Chem	P,S,U	200	1.67	40	0.33	17	0.14	38.5%	135,000	19,133	86,661

2003-2004 AVERAGING DEMONSTRATION (ALL PRODUCTS continued)

CONFIDENTIAL

CALIFORNIA

				L				M	V	G	G x M	G x V x L
Product Code	Product Name	Coating Category	VOC LIMIT (g/L)	VOC LIMIT (lbs/G)	COATING VOC CONTENT (g/L)	COATING VOC CONTENT (lbs/G)	MATERIAL VOC CONTENT (g/L)	MATERIAL VOC CONTENT (lbs/G)	% Volume Solids VOC	Projected Volume (Gallons)	Projected Actual Emissions (lbs)	Allowable Emissions (lbs)
V 2801	Even Coat	P,S,U	200	1.67	35	0.29	15	0.13	54.3%	9,500	1,188	8,601
B 3117	Extra-Strong Seal	P,S,U	200	1.67	60	0.50	32	0.27	39.9%	7,000	1,867	4,657
B 0279	Inti-Seal	P,S,U	200	1.67	75	0.63	20	0.17	31.1%	80,400	13,406	41,691
B 647	Leveler	P,S,U	200	1.67	50	0.42	35	0.29	52.6%	2,300	671	2,017
X 6093	Aqua-Guard	P,S,U (QD)	200	1.67	420	3.50	420	3.50	100.0%	30,400	106,444	50,688
R 53	Top Coat	Roof	250	2.08	350	2.92	300	2.50	100.0%	9,500	23,760	19,800
M 549	Rust-B-Gone	Rust Preventative	400	3.33	430	3.58	430	3.58	100.0%	19,000	68,112	63,360
21-3	Annihilator	Rust Preventative	400	3.33	315	2.63	310	2.58	100.0%	8,750	22,614	29,179
I 22	Super Clear	Stain	250	2.08	430	3.58	440	3.67	100.0%	3,000	11,005	6,253
T 011	Firm Bond Seal	H20-Pf Wood Seal	200	1.67	358	2.98	349	2.91	100.0%	3,000	8,729	5,002
										TOTALS	**2,678,271**	**2,807,979**

Compliance Period: 7/1/2003 to 6/30/2004
Interim Report Due: 2/13/2004
Final Report Due: 8/29/2004

$$\frac{\textbf{ACTUAL}}{\textbf{ALLOWABLE}} = 95.4\%$$

G = Projected Volume (Gallons)
M = Material VOC Content (lbs/G)
V = % Volume Solids + VOC
L = VOC Limit (lbs/G)

Submitted by: CLEAN COATINGS PAINT CO.
4907 W. Main St.
Los Angeles, CA 90004
Contact: Norah Clean
(213) 216-3958, Extension 5555

2003-2004 AVERAGING DEMONSTRATION- COATINGS BELOW LIMITS

CONFIDENTIAL

CALIFORNIA/SCAQMD

				L				M	V	G	G x M	G x V x L
Product Code	**Product Name**	**Coating Category**	**VOC LIMIT (g/L)**	**VOC LIMIT (lbs/G)**	**COATING VOC CONTENT (g/L)**	**COATING VOC CONTENT (lbs/G)**	**MATERIAL VOC CONTENT (g/L)**	**MATERIAL VOC CONTENT (lbs/G)**	**% Volume Solids + VOC**	**Projected Volume (Gallons)**	**Projected Actual Emissions (lbs)**	**Allowable Emissions (lbs)**
X 7471	Cover Up	Flat	100	0.83	80	0.67	30	0.25	44.1%	1,100	275	404
X 3693	Acrylic Cover Up	Flat	100	0.83	95	0.79	38	0.32	40.3%	800	253	269
F 40	Totally Flat	Flat	100	0.83	69	0.58	28	0.23	41.0%	2,500,000	583,576	854,523
F 30-9	Swift Coat	Flat	100	0.83	55	0.46	20	0.17	48.1%	420,000	70,029	168,420
F 2020	Fit Flat	Flat	100	0.83	58	0.48	18	0.15	37.1%	4,000	600	1,237
F 420	Smooth as Silk	Flat	100	0.83	25	0.21	18	0.15	52.1%	100,000	15,006	43,435
S 0122	Mask-It Graffiti Cover	Flat	100	0.83	35	0.29	15	0.13	37.1%	2,500	313	773
S 0201	Royal	Non-Flat	150	1.25	135	1.13	55	0.46	44.4%	487,500	223,531	270,675
W 9602	Lasting Color	Non-Flat	150	1.25	145	1.21	70	0.58	47.3%	170,000	99,208	100,554
L 1379	Splendi-Chrom	Non-Flat	150	1.25	87	0.73	33	0.28	39.0%	61,500	16,920	29,994
G 65-1	Super Semi-Gloss	Non-Flat	150	1.25	80	0.67	40	0.33	46.3%	22,100	7,370	12,796
J 409	Soft Shell	Non-Flat	150	1.25	7	0.06	2	0.02	38.0%	3,200	53	1,521
21-3	Annihilator	Rust Preventative	400	3.33	315	2.63	310	2.58	100.0%	8,750	22,614	29,179
F 818	Celi-Kote	P,S,U	200	1.67	100	0.83	54	0.45	49.9%	80,000	36,015	66,561
F 310	Classic Seal	P,S,U	200	1.67	160	1.33	60	0.50	39.6%	107,300	53,672	70,848
C 911	Good to Go Primer	P,S,U	200	1.67	133	1.11	56	0.47	44.4%	170,000	79,366	125,852
C 525	First Step	P,S,U	200	1.67	130	1.08	50	0.42	42.6%	41,200	17,174	29,264
M 226	Rock Prime	P,S,U	200	1.67	120	1.00	50	0.42	41.4%	5,000	2,084	3,451
V 16795	Arti-Chem	P,S,U	200	1.67	40	0.33	17	0.14	38.5%	135,000	19,133	86,661
V 2801	Even Coat	P,S,U	200	1.67	35	0.29	15	0.13	54.3%	9,500	1,188	8,601
B 3117	Extra-Strong Seal	P,S,U	200	1.67	60	0.50	32	0.27	39.9%	7,000	1,867	4,657
B 0279	Inti-Seal	P,S,U	200	1.67	75	0.63	20	0.17	31.1%	80,400	13,406	41,691
B 647	Leveler	P,S,U	200	1.67	50	0.42	35	0.29	52.6%	2,300	671	2,017
										TOTALS	**1,264,325**	**1,953,384**

Compliance Period: 7/1/2003 to 6/30/2004
Interim Report Due: 2/13/2004
Final Report Due: 8/29/2004

$$\frac{\textbf{ACTUAL}}{\textbf{ALLOWABLE}} = \textbf{64.7\%}$$

Submitted by: CLEAN COATINGS PAINT CO.

2003-2004 AVERAGING DEMONSTRATION- COATINGS ABOVE LIMITS

CONFIDENTIAL

CALIFORNIA

				L				M	V	G	G x M	G x V x L
Product Code	**Product Name**	**Coating Category**	**VOC LIMIT (g/L)**	**VOC LIMIT (lbs/G)**	**COATING VOC CONTENT (g/L)**	**COATING VOC CONTENT (lbs/G)**	**MATERIAL VOC CONTENT (g/L)**	**MATERIAL VOC CONTENT (lbs/G)**	**% Volume Solids + VOC**	**Projected Volume (Gallons)**	**Projected Actual Emissions (lbs)**	**Allowable Emissions (lbs)**
F 6079	Super Flat	Flat	100	0.83	165	1.38	60	0.50	36.7%	134,000	67,028	40,999
S 1168	Ready Flat	Flat	100	0.83	115	0.96	43	0.36	35.8%	95,000	34,056	28,353
Q 45	Quick-Coat	Non-Flat (QD)	250	2.08	350	2.92	350	2.92	100.0%	37,000	107,962	77,115
Q 19	Permagloss	Non-Flat (QD)	250	2.08	325	2.71	325	2.71	100.0%	11,000	29,804	22,926
Q 6389	Quick-Shine	Enamel (QD)	250	2.08	396	3.30	395	3.29	100.0%	2,500	8,233	5,211
Q 1672	Speedy Alkyshine	Enamel (QD)	250	2.08	350	2.92	350	2.92	100.0%	295	861	615
T 1	Acri-Paint	Non-Flat	150	1.25	260	2.17	260	2.17	100.0%	16,000	34,681	20,008
T 2	Acri-Paint Deluxe	Non-Flat	150	1.25	250	2.08	250	2.08	100.0%	7,500	15,632	9,379
F 818	Glossy Touch	Non-Flat	150	1.25	246	2.05	124	1.03	47.2%	705,000	728,804	416,123
M 549	Rust-B-Gone	Rust Preventative	400	3.33	430	3.58	430	3.58	100.0%	19,000	68,112	63,360
X 6093	Aqua-Guard	P,S,U (QD)	200	1.67	420	3.50	420	3.50	100.0%	30,400	106,444	50,688
T 001	All-Purpose Undercoat	P,S,U	200	1.67	365	3.04	365	3.04	100.0%	40,000	121,717	66,694
T 011	Firm Bond Seal	H20-Pf Wood Seal	200	1.67	358	2.98	349	2.91	100.0%	3,000	8,729	5,002
6054	Industrial Glow	IMC	250	2.08	400	3.33	420	3.50	100.0%	2,200	7,703	4,585
I 22	Super Clear	Stain	250	2.08	430	3.58	440	3.67	100.0%	3,000	11,005	6,253
R 53	Top Coat	Roof	250	2.08	350	2.92	300	2.50	100.0%	9,500	23,760	19,800
V 4567	Delux Industrial Coating	IMC	250	2.08	376	3.13	340	2.83	100.0%	1200	3,401	2,501
F9	Endura-Coat	Floor	100	0.83	200	1.67	100	0.83	41.6%	43,200	36,015	14,982
										TOTALS	**1,413,945**	**854,595**

Compliance Period: 7/1/2003 to 6/30/2004
Interim Report Due: 2/13/2004
Final Report Due: 8/29/2004

$\frac{\text{ACTUAL}}{\text{ALLOWABLE}}$ = 165.5%

Submitted by: CLEAN COATINGS PAINT CO.

Distribution Data
2002: California Statewide
2002: SCAQMD Only
2001: California Statewide
2001: SCAQMD Only
Graphic Summaries

2002 YTD DISTRIBUTION DATA

CONFIDENTIAL

CALIFORNIA

					L				M	V	G	G x M	G x V x L
	Product Code	Product Name	Coating Category	VOC LIMIT (g/L)	VOC LIMIT (lbs/G)	COATING VOC CONTENT (g/L)	COATING VOC CONTENT (lbs/G)	MATERIAL VOC CONTENT (g/L)	MATERIAL VOC CONTENT (lbs/G)	% Volume Solids + VOC	Volume (Gallons)	Actual Emissions (lbs)	Allowable Emissions (lbs)
	F 6079	Super Flat	Flat	100	0.83	165	1.38	60	0.50	36.7%	110,500	55,273	33,809
	S 1168	Ready Flat	Flat	100	0.83	115	0.96	43	0.36	35.8%	84,350	30,238	25,175
	Q 45	Quick-Coat	Non-Flat (QD)	250	2.08	350	2.92	350	2.92	100.0%	38,321	111,816	79,869
	Q 19	Permagloss	Non-Flat (QD)	250	2.08	325	2.71	325	2.71	100.0%	10,587	28,685	22,065
	Q 6389	Quick-Shine	Enamel (QD)	250	2.08	396	3.30	395	3.29	100.0%	2,300	7,574	4,794
	Q 1672	Speedy Alkyshine	Enamel (QD)	250	2.08	350	2.92	350	2.92	100.0%	285	832	594
	T 1	Acri-Paint	Non-Flat	150	1.25	260	2.17	260	2.17	100.0%	14,756	31,985	18,453
	T 2	Acri-Paint Deluxe	Non-Flat	150	1.25	250	2.08	250	2.08	100.0%	6,890	14,360	8,616
	F 818	Glossy Touch	Non-Flat	150	1.25	246	2.05	124	1.03	47.2%	625,467	646,585	369,179
	M 549	Rust-B-Gone	Rust Preventative	400	3.33	430	3.58	430	3.58	100.0%	17,936	64,297	59,812
	X 6093	Aqua-Guard	P,S,U (QD)	200	1.67	420	3.50	420	3.50	100.0%	26,549	92,960	44,267
	T 001	All-Purpose Undercoat	P,S,U	200	1.67	365	3.04	365	3.04	100.0%	36,860	112,163	61,459
	T 011	Firm Bond Seal	H20-Pf Wood Seal	200	1.67	358	2.98	349	2.91	100.0%	3,100	9,020	5,169
	6054	Industrial Glow	IMC	250	2.08	400	3.33	420	3.50	100.0%	2,005	7,020	4,179
	I 22	Super Clear	Stain	250	2.08	430	3.58	440	3.67	100.0%	3,000	11,005	6,253
	R 53	Top Coat	Roof	250	2.08	350	2.92	300	2.50	100.0%	9,780	24,460	20,383
Above	V 4567	Delux Industrial Coating	IMC	250	2.08	376	3.13	340	2.83	100.0%	820	2,324	1,709
Limits	F9	Endura-Coat	Floor	100	0.83	200	1.67	100	0.83	41.6%	37,210	31,021	12,905
Below	X 7471	Cover Up	Flat	100	0.83	80	0.67	30	0.25	44.1%	1,000	250	368
Limits	X 3693	Acrylic Cover Up	Flat	100	0.83	95	0.79	38	0.32	40.3%	750	238	252
	F 40	Totally Flat	Flat	100	0.83	69	0.58	28	0.23	41.0%	2,000,740	467,034	683,871
	F 30-9	Swift Coat	Flat	100	0.83	55	0.46	20	0.17	48.1%	2,290	382	918
	F 2020	Fit Flat	Flat	100	0.83	58	0.48	18	0.15	37.1%	3,000	450	928
	F 420	Smooth as Silk	Flat	100	0.83	25	0.21	18	0.15	52.1%	87,900	13,190	38,179
	S 0122	Mask-It Graffiti Cover	Flat	100	0.83	35	0.29	15	0.13	37.1%	2,560	320	792
	S 0201	Royal	Non-Flat	150	1.25	135	1.13	55	0.46	44.4%	425,600	195,148	236,306
	W 9602	Lasting Color	Non-Flat	150	1.25	145	1.21	70	0.58	47.3%	151,630	88,488	89,689

2002 YTD DISTRIBUTION DATA (continued)

CONFIDENTIAL

CALIFORNIA

				L				M	V	G	G x M	G x V x L
Product Code	Product Name	Coating Category	VOC LIMIT (g/L)	VOC LIMIT (lbs/G)	COATING VOC CONTENT (g/L)	COATING VOC CONTENT (lbs/G)	MATERIAL VOC CONTENT (g/L)	MATERIAL VOC CONTENT (lbs/G)	% Volume Solids + VOC	Volume (Gallons)	Actual Emissions (lbs)	Allowable Emissions (lbs)
L 1379	Splendi-Chrom	Non-Flat	150	1.25	87	0.73	33	0.28	39.0%	55,600	15,296	27,116
G 65-1	Super Semi-Gloss	Non-Flat	150	1.25	80	0.67	40	0.33	46.3%	18,542	6,183	10,736
J 409	Soft Shell	Non-Flat	150	1.25	7	0.06	2	0.02	38.0%	1,523	25	724
21-3	Annihilator	Rust Preventative	400	3.33	315	2.63	310	2.58	100.0%	9,200	23,777	30,679
F 818	Celi-Kote	P,S,U	200	1.67	100	0.83	54	0.45	49.9%	749	337	623
F 310	Classic Seal	P,S,U	200	1.67	160	1.33	60	0.50	39.6%	4,520	2,261	2,984
C 911	Good to Go Primer	P,S,U	200	1.67	133	1.11	56	0.47	44.4%	75,100	35,061	55,597
C 525	First Step	P,S,U	200	1.67	130	1.08	50	0.42	42.6%	102,355	42,666	72,702
M 226	Rock Prime	P,S,U	200	1.67	120	1.00	50	0.42	41.4%	147,900	61,651	102,094
V 16795	Arti-Chem	P,S,U	200	1.67	40	0.33	17	0.14	38.5%	38,244	5,420	24,550
V 2801	Even Coat	P,S,U	200	1.67	35	0.29	15	0.13	54.3%	4,075	510	3,689
B 3117	Extra-Strong Seal	P,S,U	200	1.67	60	0.50	32	0.27	39.9%	133,260	24,831	83,130
B 0279	Inti-Seal	P,S,U	200	1.67	75	0.63	20	0.17	31.1%	6,475	1,080	3,358
B 647	Leveler	P,S,U	200	1.67	50	0.42	35	0.29	52.6%	5,762	1,681	5,053
W 2397	Interior Wall Sealer	General PS&U	200	1.67	59	0.49	18	0.15	31.1%	77,509	11,631	40,192
W 304	Blocfil, Medium	General PS&U	200	1.67	58	0.48	31	0.26	52.6%	956	247	838
										TOTALS	**2,279,776**	**2,294,058**

$$\frac{\text{ACTUAL}}{\text{ALLOWABLE}} = 00.4\%$$

G = Projected Volume (Gallons)
M = Material VOC Content (lbs/G)
V = % Volume Solids + VOC
L = VOC Limit (lbs/G)

Submitted by: CLEAN COATINGS PAINT CO.
4907 W. Main St.
Los Angeles, CA 90004
Contact: Norah Clean
(213) 216-3958, Extension 5555

2002 YTD DISTRIBUTION DATA

CONFIDENTIAL

SCAQMD ONLY

					L				M	V	G	G x M	G x V x L
	Product Code	Product Name	Coating Category	VOC LIMIT (g/L)	VOC LIMIT (lbs/G)	COATING VOC CONTENT (g/L)	COATING VOC CONTENT (lbs/G)	MATERIAL VOC CONTENT (g/L)	MATERIAL VOC CONTENT (lbs/G)	% Volume Solids + VOC	Volume (Gallons)	Actual Emissions (lbs)	Allowable Emissions (lbs)
	F 6079	Super Flat	Flat	100	0.83	165	1.38	60	0.50	36.7%	28,500	14,256	8,720
	S 1168	Ready Flat	Flat	100	0.83	115	0.96	43	0.36	35.8%	2,050	735	612
	Q 45	Quick-Coat	Non-Flat (QD)	250	2.08	350	2.92	350	2.92	100.0%	33,140	96,699	69,070
	Q 19	Permagloss	Non-Flat (QD)	250	2.08	325	2.71	325	2.71	100.0%	25	68	52
	Q 6389	Quick-Shine	Enamel (QD)	250	2.08	396	3.30	395	3.29	100.0%	1,423	4,686	2,966
	Q 1672	Speedy Alkyshine	Enamel (QD)	250	2.08	350	2.92	350	2.92	100.0%	0	0	0
	T 1	Acri-Paint	Non-Flat	150	1.25	260	2.17	260	2.17	100.0%	9,875	21,405	12,349
	T 2	Acri-Paint Deluxe	Non-Flat	150	1.25	250	2.08	250	2.08	100.0%	7,300	15,215	9,129
	F 818	Glossy Touch	Non-Flat	150	1.25	246	2.05	124	1.03	47.2%	389,654	402,810	229,992
	M 549	Rust-B-Gone	Rust Preventative	400	3.33	430	3.58	430	3.58	100.0%	12,800	45,886	42,684
	X 6093	Aqua-Guard	P,S,U (QD)	200	1.67	420	3.50	420	3.50	100.0%	15,185	53,170	25,319
	T 001	All-Purpose Undercoat	P,S,U	200	1.67	365	3.04	365	3.04	100.0%	30,254	92,061	50,444
	T 011	Firm Bond Seal	H20-Pf Wood Seal	200	1.67	358	2.98	349	2.91	100.0%	1,980	5,761	3,301
	6054	Industrial Glow	IMC	250	2.08	400	3.33	420	3.50	100.0%	1,420	4,972	2,960
	I 22	Super Clear	Stain	250	2.08	430	3.58	440	3.67	100.0%	2,230	8,180	4,648
	R 53	Top Coat	Roof	250	2.08	350	2.92	300	2.50	100.0%	6,529	16,329	13,608
Above	V 4567	Delux Industrial Coating	IMC	250	2.08	376	3.13	340	2.83	100.0%	50	142	104
Limits	F9	Endura-Coat	Floor	100	0.83	200	1.67	100	0.83	41.6%	31,201	26,012	10,821
Below	X 7471	Cover Up	Flat	100	0.83	80	0.67	30	0.25	44.1%	517	129	190
Limits	X 3693	Acrylic Cover Up	Flat	100	0.83	95	0.79	38	0.32	40.3%	505	160	170
	F 40	Totally Flat	Flat	100	0.83	69	0.58	28	0.23	41.0%	1,450,000	338,474	495,623
	F 30-9	Swift Coat	Flat	100	0.83	55	0.46	20	0.17	48.1%	300,224	50,058	120,390
	F 2020	Fit Flat	Flat	100	0.83	58	0.48	18	0.15	37.1%	10	2	3
	F 420	Smooth as Silk	Flat	100	0.83	25	0.21	18	0.15	52.1%	51,279	7,695	22,273
	S 0122	Mask-It Graffiti Cover	Flat	100	0.83	35	0.29	15	0.13	37.1%	2,000	250	619
	S 0201	Royal	Non-Flat	150	1.25	135	1.13	55	0.46	44.4%	308,715	141,553	171,408

2002 YTD DISTRIBUTION DATA (continued)

CONFIDENTIAL

SCAQMD ONLY

				L				M	V	G	G x M	G x V x L
Product Code	Product Name	Coating Category	VOC LIMIT (g/L)	VOC LIMIT (lbs/G)	COATING VOC CONTENT (g/L)	COATING VOC CONTENT (lbs/G)	MATERIAL VOC CONTENT (g/L)	MATERIAL VOC CONTENT (lbs/G)	% Volume Solids + VOC	Volume (Gallons)	Actual Emissions (lbs)	Allowable Emissions (lbs)
W 9602	Lasting Color	Non-Flat	150	1.25	145	1.21	70	0.58	47.3%	56,750	33,118	33,567
L 1379	Splendi-Chrom	Non-Flat	150	1.25	87	0.73	33	0.28	39.0%	30,130	8,289	14,694
G 65-1	Super Semi-Gloss	Non-Flat	150	1.25	80	0.67	40	0.33	46.3%	20,495	6,835	11,866
J 409	Soft Shell	Non-Flat	150	1.25	7	0.06	2	0.02	38.0%	3,050	51	1,449
21-3	Annihilator	Rust Preventative	400	3.33	315	2.63	310	2.58	100.0%	6,044	15,620	20,155
F 818	Celi-Kote	P,S,U	200	1.67	100	0.83	54	0.45	49.9%	78,055	35,139	64,943
F 310	Classic Seal	P,S,U	200	1.67	160	1.33	60	0.50	39.6%	68,900	34,464	45,493
C 911	Good to Go Primer	P,S,U	200	1.67	133	1.11	56	0.47	44.4%	82,478	38,506	61,059
C 525	First Step	P,S,U	200	1.67	130	1.08	50	0.42	42.6%	22,245	9,273	15,801
M 226	Rock Prime	P,S,U	200	1.67	120	1.00	50	0.42	41.4%	3,000	1,251	2,071
V 16795	Arti-Chem	P,S,U	200	1.67	40	0.33	17	0.14	38.5%	82,900	11,749	53,216
V 2801	Even Coat	P,S,U	200	1.67	35	0.29	15	0.13	54.3%	5,500	688	4,980
B 3117	Extra-Strong Seal	P,S,U	200	1.67	60	0.50	32	0.27	39.9%	3,700	987	2,462
B 0279	Inti-Seal	P,S,U	200	1.67	75	0.63	20	0.17	31.1%	55,123	9,191	28,584
B 647	Leveler	P,S,U	200	1.67	50	0.42	35	0.29	52.6%	806	235	707
										TOTALS	**1,552,102**	**1,658,502**

$$\frac{\text{ACTUAL}}{\text{ALLOWABLE}} = 93.6\%$$

G = Projected Volume (Gallons)
M = Material VOC Content (lbs/G)
V = % Volume Solids + VOC
L = VOC Limit (lbs/G)

Submitted by: CLEAN COATINGS PAINT CO.

2001 DISTRIBUTION DATA

CONFIDENTIAL

CALIFORNIA

	Product Code	Product Name	Coating Category	VOC LIMIT (g/L)	L VOC LIMIT (lbs/G)	COATING VOC CONTENT (g/L)	COATING VOC CONTENT (lbs/G)	MATERIAL VOC CONTENT (g/L)	M MATERIAL VOC CONTENT (lbs/G)	V % Volume Solids + VOC	G Volume (Gallons)	G x M Actual Emissions (lbs)	G x V x L Allowable Emissions (lbs)
	F 6079	Super Flat	Flat	100	0.83	165	1.38	60	0.50	36.7%	161,400	80,734	49,382
	S 1168	Ready Flat	Flat	100	0.83	115	0.96	43	0.36	35.8%	1,789	641	534
	Q 45	Quick-Coat	Non-Flat (QD)	250	2.08	350	2.92	350	2.92	100.0%	37,307	108,857	77,755
	Q 19	Permagloss	Non-Flat (QD)	250	2.08	325	2.71	325	2.71	100.0%	1,015	2,750	2,115
	Q 6389	Quick-Shine	Enamel (QD)	250	2.08	396	3.30	395	3.29	100.0%	690	2,272	1,438
	Q 1672	Speedy Alkyshine	Enamel (QD)	250	2.08	350	2.92	350	2.92	100.0%	1,000	2,918	2,084
	T 1	Acri-Paint	Non-Flat	150	1.25	260	2.17	260	2.17	100.0%	16,875	36,578	21,103
	T 2	Acri-Paint Deluxe	Non-Flat	150	1.25	250	2.08	250	2.08	100.0%	8,850	18,445	11,067
	F 818	Glossy Touch	Non-Flat	150	1.25	246	2.05	124	1.03	47.2%	704,123	727,897	415,606
	M 549	Rust-B-Gone	Rust Preventative	400	3.33	430	3.58	430	3.58	100.0%	18,455	66,158	61,542
	X 6093	Aqua-Guard	P,S,U (QD)	200	1.67	420	3.50	420	3.50	100.0%	34,510	120,835	57,541
	T 001	All-Purpose Undercoat	P,S,U	200	1.67	365	3.04	365	3.04	100.0%	47,541	144,664	79,268
	T 011	Firm Bond Seal	H20-Pf Wood Seal	200	1.67	358	2.98	349	2.91	100.0%	2,564	7,460	4,275
	6054	Industrial Glow	IMC	250	2.08	400	3.33	420	3.50	100.0%	3,209	11,236	6,688
	I 22	Super Clear	Stain	250	2.08	430	3.58	440	3.67	100.0%	4,225	15,498	8,806
	R 53	Top Coat	Roof	250	2.08	350	2.92	300	2.50	100.0%	11,547	28,880	24,066
Above	V 4567	Delux Industrial Coating	IMC	250	2.08	376	3.13	340	2.83	100.0%	2,120	6,009	4,419
Limits	F9	Endura-Coat	Floor	100	0.83	200	1.67	100	0.83	41.6%	47,643	39,719	16,523
Below	X 7471	Cover Up	Flat	100	0.83	80	0.67	30	0.25	44.1%	1,235	309	454
Limits	X 3693	Acrylic Cover Up	Flat	100	0.83	95	0.79	38	0.32	40.3%	5,280	1,673	1,774
	F 40	Totally Flat	Flat	100	0.83	69	0.58	28	0.23	41.0%	1,998,547	466,522	683,122
	F 30-9	Swift Coat	Flat	100	0.83	55	0.46	20	0.17	48.1%	408,541	68,119	163,825
	F 2020	Fit Flat	Flat	100	0.83	58	0.48	18	0.15	37.1%	12,098	1,815	3,742
	F 420	Smooth as Silk	Flat	100	0.83	25	0.21	18	0.15	52.1%	96,532	14,486	41,928
	S 0122	Mask-It Graffiti Cover	Flat	100	0.83	35	0.29	15	0.13	37.1%	5,789	724	1,791
	S 0201	Royal	Non-Flat	150	1.25	135	1.13	55	0.46	44.4%	450,266	206,458	250,002
	W 9602	Lasting Color	Non-Flat	150	1.25	145	1.21	70	0.58	47.3%	145,600	84,969	86,122
	L 1379	Splendi-Chrom	Non-Flat	150	1.25	87	0.73	33	0.28	39.0%	5,120	1,409	2,497
	G 65-1	Super Semi-Gloss	Non-Flat	150	1.25	80	0.67	40	0.33	46.3%	8,100	2,701	4,690

2001 DISTRIBUTION DATA (continued)

CONFIDENTIAL

CALIFORNIA

				L				M	V	G	G x M	G x V x L
Product Code	**Product Name**	**Coating Category**	**VOC LIMIT (g/L)**	**VOC LIMIT (lbs/G)**	**COATING VOC CONTENT (g/L)**	**COATING VOC CONTENT (lbs/G)**	**MATERIAL VOC CONTENT (g/L)**	**MATERIAL VOC CONTENT (lbs/G)**	**% Volume Solids + VOC**	**Volume (Gallons)**	**Actual Emissions (lbs)**	**Allowable Emissions (lbs)**
J 409	Soft Shell	Non-Flat	150	1.25	7	0.06	2	0.02	38.0%	5,019	84	2,385
21-3	Annihilator	Rust Preventative	400	3.33	315	2.63	310	2.58	100.0%	7,150	18,479	23,843
F 818	Celi-Kote	P,S,U	200	1.67	100	0.83	54	0.45	49.9%	86,223	38,817	71,739
F 310	Classic Seal	P,S,U	200	1.67	160	1.33	60	0.50	39.6%	107,923	53,984	71,259
C 911	Good to Go Primer	P,S,U	200	1.67	133	1.11	56	0.47	44.4%	160,200	74,791	118,597
C 525	First Step	P,S,U	200	1.67	130	1.08	50	0.42	42.6%	37,770	15,744	26,828
M 226	Rock Prime	P,S,U	200	1.67	120	1.00	50	0.42	41.4%	9,818	4,093	6,777
V 16795	Arti-Chem	P,S,U	200	1.67	40	0.33	17	0.14	38.5%	130,254	18,460	83,614
V 2801	Even Coat	P,S,U	200	1.67	35	0.29	15	0.13	54.3%	10,085	1,261	9,131
B 3117	Extra-Strong Seal	P,S,U	200	1.67	60	0.50	32	0.27	39.9%	10,230	2,729	6,806
B 0279	Inti-Seal	P,S,U	200	1.67	75	0.63	20	0.17	31.1%	92,074	15,352	47,745
B 647	Leveler	P,S,U	200	1.67	50	0.42	35	0.29	52.6%	1,335	390	1,171
										TOTALS	**2,514,919**	**2,554,054**

$$\frac{\textbf{ACTUAL}}{\textbf{ALLOWABLE}} = 98.5\%$$

G = Projected Volume (Gallons)
M = Material VOC Content (lbs/G)
V = % Volume Solids + VOC
L = VOC Limit (lbs/G)

Submitted by: CLEAN COATINGS PAINT CO.
4907 W. Main St.
Los Angeles, CA 90004
Contact: Norah Clean
(213) 216-3958, Extension 5555

2001 DISTRIBUTION DATA

CONFIDENTIAL

SCAQMD ONLY

					L				M	V	G	G x M	G x V x L
	Product Code	Product Name	Coating Category	VOC LIMIT (g/L)	VOC LIMIT (lbs/G)	COATING VOC CONTENT (g/L)	COATING VOC CONTENT (lbs/G)	MATERIAL VOC CONTENT (g/L)	MATERIAL VOC CONTENT (lbs/G)	% Volume Solids + VOC	Volume (Gallons)	Actual Emissions (lbs)	Allowable Emissions (lbs)
	F 6079	Super Flat	Flat	100	0.83	165	1.38	60	0.50	36.7%	29,400	14,706	8,995
	S 1168	Ready Flat	Flat	100	0.83	115	0.96	43	0.36	35.8%	500	179	149
	Q 45	Quick-Coat	Non-Flat (QD)	250	2.08	350	2.92	350	2.92	100.0%	30,450	88,850	63,464
	Q 19	Permagloss	Non-Flat (QD)	250	2.08	325	2.71	325	2.71	100.0%	100	271	208
	Q 6389	Quick-Shine	Enamel (QD)	250	2.08	396	3.30	395	3.29	100.0%	300	988	625
	Q 1672	Speedy Alkyshine	Enamel (QD)	250	2.08	350	2.92	350	2.92	100.0%	20	58	42
	T 1	Acri-Paint	Non-Flat	150	1.25	260	2.17	260	2.17	100.0%	12,800	27,745	16,007
	T 2	Acri-Paint Deluxe	Non-Flat	150	1.25	250	2.08	250	2.08	100.0%	3,245	6,763	4,058
	F 818	Glossy Touch	Non-Flat	150	1.25	246	2.05	124	1.03	47.2%	398,254	411,701	235,068
	M 549	Rust-B-Gone	Rust Preventative	400	3.33	430	3.58	430	3.58	100.0%	16,330	58,540	54,456
	X 6093	Aqua-Guard	P,S,U (QD)	200	1.67	420	3.50	420	3.50	100.0%	25,657	89,837	42,779
	T 001	All-Purpose Undercoat	P,S,U	200	1.67	365	3.04	365	3.04	100.0%	30,000	91,288	50,021
	T 011	Firm Bond Seal	H20-Pf Wood Seal	200	1.67	358	2.98	349	2.91	100.0%	3,000	8,729	5,002
	6054	Industrial Glow	IMC	250	2.08	400	3.33	420	3.50	100.0%	1,950	6,828	4,064
	I 22	Super Clear	Stain	250	2.08	430	3.58	440	3.67	100.0%	2,822	10,352	5,882
	R 53	Top Coat	Roof	250	2.08	350	2.92	300	2.50	100.0%	8,105	20,271	16,892
Above	V 4567	Delux Industrial Coating	IMC	250	2.08	376	3.13	340	2.83	100.0%	50	142	104
Limits	F9	Endura-Coat	Floor	100	0.83	200	1.67	100	0.83	41.6%	29,980	24,994	10,397
Below	X 7471	Cover Up	Flat	100	0.83	80	0.67	30	0.25	44.1%	1,780	445	654
Limits	X 3693	Acrylic Cover Up	Flat	100	0.83	95	0.79	38	0.32	40.3%	4,430	1,403	1,488
	F 40	Totally Flat	Flat	100	0.83	69	0.58	28	0.23	41.0%	1,050,000	245,102	358,900
	F 30-9	Swift Coat	Flat	100	0.83	55	0.46	20	0.17	48.1%	298,555	49,780	119,721
	F 2020	Fit Flat	Flat	100	0.83	58	0.48	18	0.15	37.1%	75	11	23
	F 420	Smooth as Silk	Flat	100	0.83	25	0.21	18	0.15	52.1%	49,360	7,407	21,439
	S 0122	Mask-It Graffiti Cover	Flat	100	0.83	35	0.29	15	0.13	37.1%	1,590	199	492
	S 0201	Royal	Non-Flat	150	1.25	135	1.13	55	0.46	44.4%	317,500	145,581	176,286
	W 9602	Lasting Color	Non-Flat	150	1.25	145	1.21	70	0.58	47.3%	45,621	26,623	26,985

2001 DISTRIBUTION DATA (continued)

CONFIDENTIAL

SCAQMD ONLY

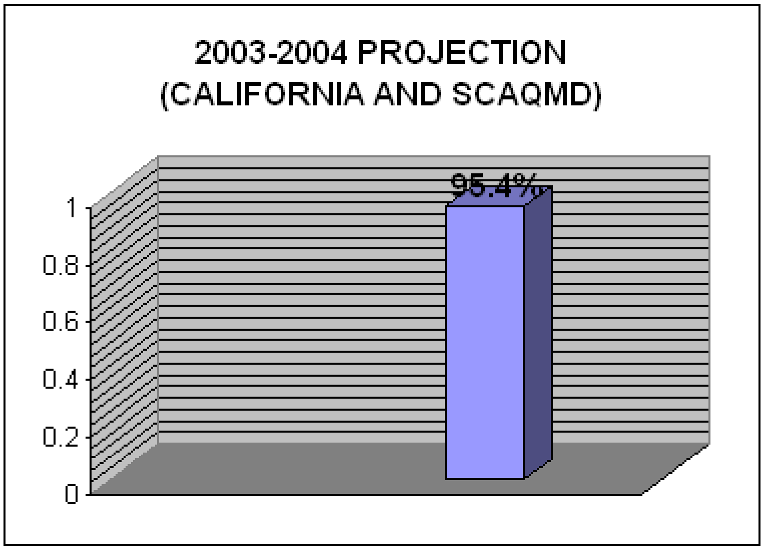
				L				M	V	G	G x M	G x V x L
Product Code	Product Name	Coating Category	VOC LIMIT (g/L)	VOC LIMIT (lbs/G)	COATING VOC CONTENT (g/L)	COATING VOC CONTENT (lbs/G)	MATERIAL VOC CONTENT (g/L)	MATERIAL VOC CONTENT (lbs/G)	% Volume Solids + VOC	Volume (Gallons)	Actual Emissions (lbs)	Allowable Emissions (lbs)
L 1379	Splendi-Chrom	Non-Flat	150	1.25	87	0.73	33	0.28	39.0%	2,005	552	978
G 65-1	Super Semi-Gloss	Non-Flat	150	1.25	80	0.67	40	0.33	46.3%	9,400	3,135	5,443
J 409	Soft Shell	Non-Flat	150	1.25	7	0.06	2	0.02	38.0%	987	16	469
21-3	Annihilator	Rust Preventative	400	3.33	315	2.63	310	2.58	100.0%	5,120	13,232	17,074
F 818	Celi-Kote	P,S,U	200	1.67	100	0.83	54	0.45	49.9%	59,300	26,696	49,338
F 310	Classic Seal	P,S,U	200	1.67	160	1.33	60	0.50	39.6%	65,487	32,757	43,239
C 911	Good to Go Primer	P,S,U	200	1.67	133	1.11	56	0.47	44.4%	95,478	44,575	70,683
C 525	First Step	P,S,U	200	1.67	130	1.08	50	0.42	42.6%	19,236	8,018	13,663
M 226	Rock Prime	P,S,U	200	1.67	120	1.00	50	0.42	41.4%	7,200	3,001	4,970
V 16795	Arti-Chem	P,S,U	200	1.67	40	0.33	17	0.14	38.5%	87,564	12,410	56,210
V 2801	Even Coat	P,S,U	200	1.67	35	0.29	15	0.13	54.3%	5,540	693	5,016
B 3117	Extra-Strong Seal	P,S,U	200	1.67	60	0.50	32	0.27	39.9%	5,970	1,593	3,972
B 0279	Inti-Seal	P,S,U	200	1.67	75	0.63	20	0.17	31.1%	55,630	9,276	28,847
B 647	Leveler	P,S,U	200	1.67	50	0.42	35	0.29	52.6%	1,100	321	965
										TOTALS	**1,495,068**	**1,525,069**

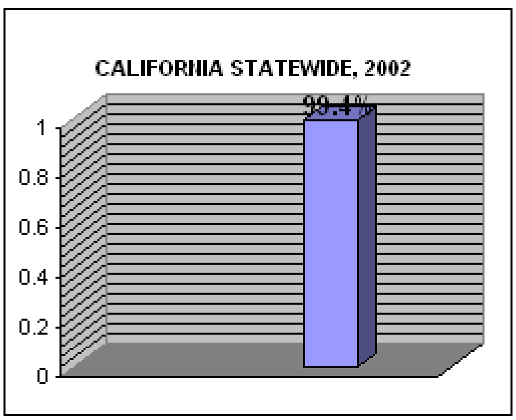
$$\frac{\textbf{ACTUAL}}{\textbf{ALLOWABLE}} = 98.0\%$$

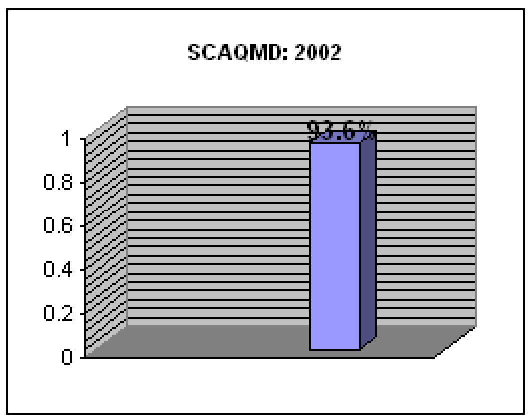
G = Projected Volume (Gallons)
M = Material VOC Content (lbs/G)
V = % Volume Solids + VOC
L = VOC Limit (lbs/G)

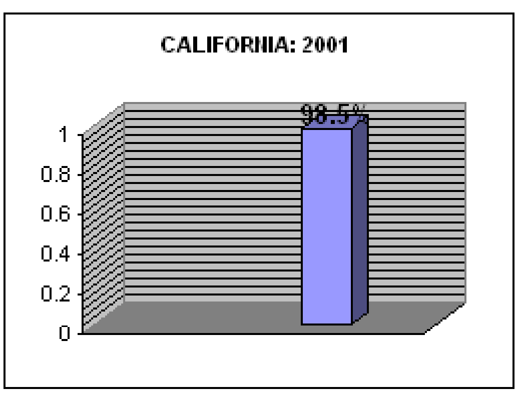
Submitted by: CLEAN COATINGS PAINT CO.
4907 W. Main St.
Los Angeles, CA 90004
Contact: Norah Clean
(213) 216-3958, Extension 5555

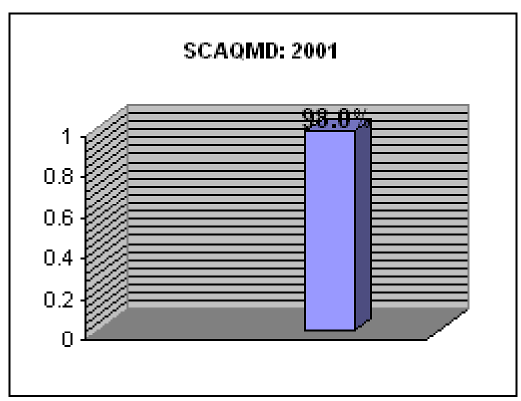
GRAPHIC SUMMARY OF ACTUAL/ ALLOWABLE RATIOS











DATA FROM MONTHLY INVOICE FILE

Customer No. 9 digits	Date Shipped	Invoice No.	Product ID Plus Size Code	Units Shipped (Gallons)
999999999	10/12/2001	XX99999	F 6079	8
999999999	10/13/2001	XX99999	X 7417	4
999999999	10/14/2001	XX99999	F 40	20
999999999	10/15/2001	XX99999	S 1168	50

DATA FROM CUSTOMER FILE

Customer No.	Customer Name	Address Shipped To	City	State
999999999	CUSTOMER STORE B	2010 OZONEFREE WAY	LOS ANGELES	CA
999999999	CUSTOMER STORE B	2010 OZONEFREE WAY	LOS ANGELES	CA
999999999	CUSTOMER STORE B	2010 OZONEFREE WAY	LOS ANGELES	CA

COMBINED DATA INTO ONE FILE

Customer No.					Date Shipped	Invoice No.	Product ID Plus Size Code	Units Shipped (Gallons)
9 digits	Customer Name	Address Shipped To	City	State	10/12/01	XX99999	F 6079	8
999999999	CUSTOMER STORE B	2010 OZONEFREE WAY	LOS ANGELES	CA	10/13/01	XX99999	X 7471	4
999999999	CUSTOMER STORE B	2010 OZONEFREE WAY	LOS ANGELES	CA	10/14/01	XX99999	F 40	20
999999999	CUSTOMER STORE B	2011 OZONEFREE WAY	LOS ANGELES	CA	10/15/01	XX99999	S 1168	50

Clean Coatings Paint- Vendors/ Distributors Located Within District

Store No.	Address	City	State	Zip	Phone	Fax	Contact
301	150 Grand Ave.	Anaheim	CA	92225	714-588-9325	714-644-5321	Angela Carrero
42	571 Alameda	Burbank	CA	91698	818-774-5681	818-764-4457	Belinda Mayer
15	1600 Brand Blvd.	Glendale	CA	91208	818-365-8975	818-365-8876	Joseph Gomez
113	522 S. Hacienda Blvd.	Industry	CA	91556	909-658-7451	909-658-7452	Daniel Durham
95	9753 W. Hollywood Blvd.	Los Angeles	CA	90015	323-669-7789	323-441-3654	Steve Rubin
137	450 Wilton Ave.	Los Angeles	CA	90020	213-468-1110	213-968-7781	Brent Horrowitz
374	250 E. 3rd	Los Angeles	CA	90004	323-865-6094	323-865-6389	Emily Miles
65	890 Desert Rd.	Palm Springs	CA	92258	760-997-5432	760-547-5220	George Richardso
88	7003 Colorado Blvd.	Pasadena	CA	91108	626-232-0868	626-223-2247	Allan Griffith
117	1066 Central Ave.	Riverside	CA	92409	909-112-7474	909-134-1147	Julie Finkelstein
10	332 Pacific Ave.	San Pedro	CA	91668	949-122-3475	9449-578-5321	Rob Lewis
420	7143 Santa Monica Blvd.	Santa Monica	CA	90447	310-454-6093	310-454-5314	David Kelly
91	3672 Ventura Blvd.	Sherman Oaks	CA	91265	818-554-3815	818-555-3456	Don Vasquez
76	3291 Burbank Blvd.	Van Nuys	CA	95467	818-778-9318	818-895-3316	Mike Williams
123	732 Main St.	W. Covina	CA	91789	626-554-3118	626-555-3214	Melissa Hayes

INVOICE NUMBER

P

xx 71?9 @ I

SHIP TO ACCT NO | TEAM NO

999 9 @5 --,2 2 r, I

STORE NO.

I 11

PAGE | CASH DISCOUNT ALLOWED ONLY WHEN PAYMENT IS MADE WITHIN ... SPECIFIED QUANTITIES, IF, MERCHANDISE CANNOT BE ACCEPTED WITHOUT SELLER'S AUTHORITY

A HANDLING CHARGE PLUS INCOMING TRANSPORTATION IF NOT PREPAID WILL BE DEDUCTED WHERE ...

CLAIMS FOR SHORTAGES MUST BE MADE WITHIN ... OF GOODS

SOLD TO ACCT. NO

119 171? 1?17 ?1?17 be I?

17 I? F 9

INVOICE NO.

0045 I-ju

CTS @-I

NET XX INVOICE

SALES TAX | COICER DATE | | W-FACIE C&T!

2 | R E | 09/ 21/ 99 | 10 9/ 24 / 99 | IO/ 12/ 9 9 | care

SNIPIMMO arety No. 37802

10/12/ 99 | 110/15/ 9 9

I ORIGINAL INVOICE

SHIP TO

Customer from

,TS55 qqq 605+ F@rst Ave_

SANTA ROSA, CA

SOLD TO

customer

92 -,' 4

-rR'/r@IE, CA

DESCRIPTION	SALES NUMBER	SIZE DESC	BASE UNIT PRICE	BILLED UNIT PRICE	QUANTITY ORDERED	QUANTITY SHIPPED	QUANTITY DUE	EXTENDED VALUE
406539 DB CEIL INLXFL-SWH	PRODUCT 99	GALLON			6	6		
406561 DB CEIL INLXFL-SWH	PRODUCT 88	QUART			4	4		
406587 INT LTX PVA PRMR	PRODUCT 77	FIVES			20	20		
429548 INLXGL C&T WHITE	1. 15811	GALLON			4	4		

B A T C H T I C K E T

BATCH **NO.:** 1014

FORMULA **KEY:** EX FLAT

Page:

ALL PURPOSE UNDERCOAT

~ ~

PRINTED: 10/11/00 START: COMPLETE: HMIS:
HI FO RO PH
CUSTOMER: Customer descln not found!
TOTAL WEIGHT: 17,122.560 **TOTAL VOLUME:** 1, 456. 05 DENSITY : 11. 760

DESCRIPTION GAL OZ POUNDS QTY REQID R P R P------------------------------- ------------- ------------ --- ----- -------------

WATER WA 01 240 0 1,999.200 1,999.200 0 0 0 A FOAMASTER VL AFX 02 2 *26* 3.7.055 17.055
1 1 0 C ROZON'E 2000 BFX o 2 61 22.500 22.500 1 2 0 C DAXAD 30 DISP. 25% CWX 03 4 88 45.000
45.000 1 1 0 A STANDAMID SD-HENKEL CWX 7 *9* 13.8 82.875 82.875 3.1 0 C DISPEX-GA 40 CWX 02 11 I
106.800 106.800 2 0 0 C TEGO DISPERS 73OW *6* 93 58.500 58.500 2 2 0 *G* HEXELENE GLYCOL -SM 11
64 s 490.770 490.770 1 1 0 B TiO2 R-901 PW 02 88 *66* 2,947.500 2,947.500 1 0 0 E MISTRON 400 PXX 05
49 49 1,200.000 1,200.000 1 0 0 E BLANCA 2 MB-1075 PXX 44 32 101 1,200.000 1,200.000 0 0 0 *G* POLESTAR 425
33 76 750.000 750.000 1 0 0 E AQUA POLY 250 cmx 63 1 107 is.ooo is.ooo o o o
DISPERSE SMOOTH

PREMIX NEXT 2 ITEMS
THEN PUMP TO TANK
WATER WA 01 105 O 874.650 874.650 0 0 0 A BERMOCOLL EBS411FQ RAX 16 9 89 90.000
90.Ooo o o o

849.660 0 0 0 A

6,102.000 0 0 0 C

USE TO WASH LINES
WATER WA 01 I 849. 660
FMC TBEP KP 140 SM 14 25 12 213.300 213.300 1 1 I H NUOCIDE 404-D BFX 02 2 117 30.000
30.000 2 0 0 R PATCO 519 DEFOAMER AFX 29 3 96 27.750 27.7§.O 1 1 0 C --
THINDOWN--------

R-575A (60%NVW) SPECIALTY POLY I *660* 50 1 6, 102. 000

QUALITY CONTROL INFORMATION

DESCRXPTXON TARGET VALUE TEST RESULTS DESCRXPTION TARGET VALUE TEST RESULTS --
------------------------- VXSC. 0 77 Dg.7 : 106-110 KU I C;LOSS 0 60 Dg : 3.0-3.5
GRIND : 3-4 NS I GLOSS 85 Dg : 1.5-2.0 -
pH : 7-8 I nity TX : 2 HRS XAXIMDK -- --

~

PHYSICALPR0PERTIESANALYSIS

FORMULA: EX FLAT

EXTERIOR LATEX STAIN WHITE

Page:

HMIS **CODES: HI** FO RO Pi

DATE PRINTED: 10-11-2000
REVISION: Sep 13, 1988
TOTAL WEIGHT: 17,122.560 **TOTAL VOLUME:** 1,456.05 **DENSITY:** 11.760
COST/LB: $ 0.4379 **COST/GAL: $** 5.1497 **TOTAL COST:** $7,498.2547

LINE	ITEM KEY	DESCRIPTION	GALLONS	POLTNI)S --
2	WA 01	WATER WA 01 FOAMASTER	240 . 00	1, 999.200
3	AFX	VL AFX 02 ROZONE 2000	. . 0	17. 055
4	02 BFX	BFX 03 DAXAD 30 DISP. 25% CWX 03	2 2 8	22 . 500
5	03	STANDAMID SD-HENKEL CWX 7	. , 9	45. 000
6	CWX	DISPEX-GA 40 CWX 02	2 4 3	82 . 875
7	03	TEGO DISPERS 73OW	1 1	106. 800
8	CWX	HEXELENE GLYCOL	, . 4 6 2	58. 500
9	07	TiO2 R-901 sm 11	6 @1 6	490.770 2,
	CWX	MISTRON 400 PW 02	99 1	947 . 500 1,
	02 cwx	BLANCA 2 MB-1075 PXX 0	8 . I1 8	2 00. 0 00 1,
12	06	POLESTAR 425 5	. 0 9	2 00. 0 00
13	sm 11	AQUA POLY 250 CMX 63 PXX 44	46 . 0	750. 000 15.
14	PW	DISPERSE SMOOTH	. 7 4	000
15	02		34 1	
16	PXX 0	PREMIX NEXT 2 ITEMS	. 0	
17	5 PXX	THEN PUMP TO TANK	38 @	
18	44	WATER WA 01 BERMOCOLL	. 5	
19	RAX WA 01	EBS411FQ RAX 16	105 00	874 .650
20	81 RAX 16		9.30	90. 000
21	CMX		2 ,	
22	63	USE TO WASH	. 7	
2 3	WA 01	LINES WATER WA 01	102.00	849**.660**
24			. I6	
25		THINDO	I 1	
2 6		WN	8	
27	VWX 17	R-575A (60%NVW) SPECIALTY	6 60. 3 9	6, **102 . 00 0**
2 8	3	POLYME		

29 SM 14 FMC TBEP KP 140 SM 14 25.09 213.300 30 BFX 02 NUOCIDE 404-D BFX 02 2.91 30.000 31 AFX 29 PATCO 519 DEFOAMER AFX 29 3.75 27.750

QUALITY CONTROL INFORMATION

DESCRIPTION RANGE LOW TARGET VALUE RANGE HIGH --

VISC. @ 77 Dg.F: 0 **106-110** *KU* .0000000000 GLOSS @ 60 Dg : 0 3.0-3.5 .0000000000 GRIND : 0 3-4 *NS* .0000000000 GLOSS 85 Dg : 0 1.5-2.0 .0000000000 pH : 0 7-8 .0000000000 DRY-TM : 0 2 HRS MAXIMUM .0000000@000 ---

---

(continued)

PHYSICALPR0PERTIESANALYSIS

FORMULA: EX FLAT

EXTERIOR LATEX STAIN WHITE

Page:

PHYSICAL PROPERTIES

DESCRIPTION VALUE I DESCRIPTION VALUE ---------------------- -- TOTAL WEIGHT 17122.56 TOTAL VOLUME 1456.049 STD. COST/POUND: 0.438 STD. COST/GAL 5.150 TOTAL VEH WT% 64.301 TOTAL VEH VOL% 85.844 PIGMENT WT% 35.699 PIGMENT VOL% 14.156 VOLATILE WT% 41.127 VOLATILE VOL% 58.414 ORG. SOLV. WT% 4.358 ORG. SOLV. VOL%: 6.466 SOLIDS WT% 58.873 SOLIDS VOL% 41.586 VEH SOLIDS WT% 23.'175 VEH SOLIDS VOL%: 27.430 DENSITY 11.760 SPEC. GRAVITY I..412 BLTLKING FACTOR 0.085 P.V.C.% 34.040 P/B RATIO 1.540 SPREAD @ I MIL 667.036 CPSFA @ I MIL 0.0077 COATING VOC 127.802 MATERIAL VOC 61.411 TOTAL HB 3.291 TOTAL SP 8.597 SOLIDS HB 0.670 SOLIDS SP 1.377

COPIES OF RULES

RULE 306. PLAN FEES

(a) Summary

California Health and Safety Code Section 40522 provides authority for the South Coast Air Quality Management District to adopt a fee schedule for the approval of plans to cover the costs of review, planning, inspection, and monitoring related to activities conducted pursuant to the plans. An annual fee may also be charged to cover the costs of annual review, inspection, and monitoring related thereto. This rule establishes such a fee schedule, and requires that fees be paid for:

(1) Filing of plans;

(2) Evaluation of the above plans;

(3) Duplicate plans;

(4) Change of condition; and

(5) Annual review/renewal of plans, if applicable.

(b) Definitions

For the purpose of this rule, a plan is any data and/or test report required by federal or state law, or District Rules and Regulations to be submitted to the District. A plan may be a description of a method to control or measure emissions of air contaminants required by the Rules and Regulations. Plans include, but are not limited to, the following: Demonstration Plan; Application Test Plan; Implementation Plan; Compliance Plan; Management Plan; Control Plan; Acid Rain Repowering Extension Plan and Compliance Plan; Acid Rain Continuous Emission Monitoring System Plan; Acid Rain Protocol/Report Evaluation; VOC Excavation Mitigation Plans (Site Specific and Various Locations); Reduction of Refrigerant Emissions from Stationary Refrigeration and Air Conditioning Systems Plan, Title V Exclusion Requests, Rule 109.1. Alternative Recordkeeping System Plan and Solid Waste Air Quality Assessment Test Reports (Health and Safety Code Section 41805.5).

(c) Plan Filing Fee

The filing fee for a plan or change of condition shall be $ 89.59.

(d) Plan Evaluation Fee

The plan evaluation fee shall be an amount equal to the total actual and reasonable time incurred by the District for evaluation of a plan, assessed at the rate of $ 89.59 per person per hour or prorated portion thereof.

(e) Duplicate Plan Fee

A request for a duplicate plan shall be made in writing by the applicant. The applicant shall pay $ 15.43 for each plan requested.

(f) Change of Condition Fee

Any request for a change of condition on a VOC Excavation Mitigation Plan shall be made in writing by the applicant. A request submitted after thirty (30) days of the issuance of the plan shall be subject to additional fees assessed at the rate of $ 89.59 per hour for time spent in evaluation of the plan. Such fees shall be imposed at the time the review is completed.

(g) Annual Review/Renewal Fee

If the Executive Officer determines that an annual review/renewal is necessary, an annual review/renewal fee shall be charged. The annual review/renewal fee shall be an amount equal to the total actual and reasonable time incurred by the District for review of the plan, assessed at the rate of $ 89.59 per person per hour or prorated portion thereof, and shall be imposed at the time the review/renewal is completed.

(h) Payment of Fees

(1) In addition to payment of the filing fee, an initial payment for plan evaluation fees of $ 298.71 shall be paid at the time of filing. This fee shall not apply to plans pursuant to Rule 403 - Fugitive Dust, and Rule 1166 - Various Location Plans issued pursuant to the Decontamination of VOC Soil, for which the initial payment for plan evaluation fees will be $ 89.59. The adjustment to plan evaluation fees will be determined at the time a plan is approved or rejected and notification of the amount due or refund will be made.

(2) Payment of all applicable fees, including annual review/renewal fee, shall be due in thirty (30) days from the date of personal service or mailing of the notification of the amount due. Non-payment of the fee within this time period will result in expiration of the plan. For the purpose of this paragraph, the fee payment will be considered to be received by the District if it is postmarked by the United States Postal Service on or before the expiration date stated on the billing notice. If the expiration date falls on a Saturday, Sunday, or a state holiday, the fee payment may be postmarked on the business day following the Saturday, Sunday, or the state holiday with the same effect as if it had been postmarked on the expiration date. No further plan applications will be accepted until such time as all overdue fees have been fully paid

Whenever the Executive Officer has reasonable cause to believe that the plan evaluation fee will be less than the fee for one hour's work, the fee need not be paid at the time of filing and notification of amount due, if any, shall be sent at the time the plan is approved or rejected.

(i) Small Business Discount

For small businesses filing plans, the fees assessed shall be fifty percent (50%) of the amounts specified in subdivisions (c), (d), (f), and (g).

(j) Alternative Recordkeeping System Plan Discount

For alternative recordkeeping system plan filed pursuant to Rule 109.1, the fee assessed shall be fifty percent (50%) of the amount specified in subdivisions (d), (f), and (g).

(k) Plan Application Cancellation Fee

The plan application cancellation fee shall be $ 119.44 or the plan fee set forth in the Summary Permit Fee Rates table, whichever is less.

(l) Protocol/Report Evaluation Fees

A minimum fee of $ 238.99 will be charged for the evaluation of source test protocols and reports. Additional fees for time spent in the evaluation in excess of 5 hours will be assessed at the hourly rate~~s~~ of $ 89.59 per hour.

(m) Request for Time Extension of Payment Due

Whenever this rule requires fees to be paid by a certain date to avoid expiration, cancellation, or the imposition of an increased fee for late payment, the Executive Officer may, for good cause, grant an extension of time, not to exceed one hundred eighty (180) days, within which the fee payment shall be made. Any request for an extension of time hereunder shall be made in writing and accompanied by a statement of reasons explaining why the extension should be granted. This section does not apply to Rule 1166 excavation and VOC mitigation plans.

(n) Adjustment of Fees

The Executive Officer may, upon finding an administrative error by District staff regarding the calculation, imposition, noticing, invoicing, and/or collection of any fee set forth within this rule, rescind, reduce, increase, or modify such fee. Any request for such relief from an administrative error shall be received by the District in writing prior to the expiration date of notification of the amount due, accompanied by a statement of why such relief should be granted. Claims for refund of any fee required by this rule shall be submitted in writing within one (1) year after the fee was paid.

(o) Exemptions

Mobile Source Emission Reduction Credit (MSERC) Applications and Compliance Plans required under Regulation XVI shall be exempt from the provisions of this rule. Fees for Regulation XVI MSERC Applications and Compliance Plans shall be assessed in accordance with District Rule 309.

(p) Government Agencies

Federal, state, or local government agencies or public districts shall pay all fees.

(q) Effective July 1, 1996, all Air Quality Investment Program (AQIP) fees shall be subject to Rule 311 and all other Rule 2202 registration fees shall be subject to Rule 308.

(r) Service charge for returned check

Any person who submits a check to the District on insufficient funds or on instructions to stop payment on the check, absent an overcharge or other legal entitlement to withhold payment, shall be subject to $ 28.43 service charge.

(Adopted January 4, 1985)

RULE 221. PLANS

(a) A person shall not conduct any operation for which these rules and regulations require a plan without first obtaining approval of such plan by the Executive Officer within the time interval expressed in said rules and regulations.

(b) The operation shall not be conducted contrary to any conditions specified in the approved plan.

(c) All plans shall be submitted in a form and manner as specified by the Executive Officer.

(d) A violation of the plan is a violation of the rule.

(e) A plan shall have all the rights delineated in Regulation II for permits including the right of appeal.

ZIPCODE LIST

DISTRICT ZIP CODES

90001	90057	90224	90407	90744	91102	91312	91403	91724	90633	92684	92842	92505	91701	92399
90002	90058	90230	90408	90745	91103	91313	91404	91731	90680	92685	92843	92506	91708	92401
90003	90059	90231	90409	90746	91104	91316	91405	91732	90720	92688	92844	92507	91709	92402
90004	90060	90232	90410	90747	91105	91321	91406	91733	90721	92690	92845	92508	91710	92403
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90006	90062	90239	90501	90749	91107	91325	91408	91735	90742	92692	92850	92513	91730	92405
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90012	90068	90248	90507	90806	91116	91331	91416	91747	92606	92703	92863	92519	91761	92412
90013	90069	90249	90508	90807	91117	91333	91423	91748	92607	92704	92864	92521	91762	92413
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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Subsequent Environmental Assessment for:

Proposed Amended Rule 1113 - Architectural Coatings

SCAQMD No. 020806MK

November 15, 2002

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ACKNOWLEDGEMENTS

This Draft Subsequent Environmental Assessment was primarily developed from the previously prepared May 1999 Final Subsequent Environmental Assessment and therefore, the following people are acknowledged for their work on the latter CEQA document.

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PREFACE

This document constitutes the Final Subsequent Environmental Assessment (EA) for the amendments to Rule 1113 - Architectural Coatings. The Draft EA was released for a 30-day public review and comment period from August 6, 2002 – September 4, 2002. Four letters commenting on CEQA issues were received from the public. These four comment letters and responses to these comment letters can be found in Appendix H. Minor modifications have been made to the Draft such that it is now a Final EA. Deletions and additions to the text of the EA are denoted using ~~strikethrough~~ and *italics*, respectively.

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CHAPTER 1

LEGISLATIVE AUTHORITY AND EXECUTIVE SUMMARY

INTRODUCTION

Rule 1113 – Architectural Coatings, was originally adopted by the South Coast Air Quality Management District (SCAQMD) on September 2, 1977, to control volatile organic compound (VOC) emissions from architectural coatings. Rule 1113 was amended in 1999 to implement, in part, both the 1994 and the 1997 Air Quality Management Plan (AQMP) control measure CTS-07 – Further Emission Reductions from Architectural Coatings, which calls for a reduction of the allowable VOC content limit per liter of coating from the following coating categories: industrial maintenance (IM); non-flats; primers, sealers, and undercoaters; quick-dry enamels; quick-dry primers, sealers, and undercoaters; roof coatings; stains; and waterproofing wood sealers. The 1999 amendments to Rule 1113 also added several new coating categories, ~~bituminious roof coatings, chemical storage tank coatings, essential public service coatings~~, *bituminious roof primers*, floor coatings, high temperature industrial maintenance coatings, nonflats, quick-dry primers, sealers, and undercoaters, recycled coatings, rust preventative coatings, specialty primers, *zinc-rich IM primers*, and waterproofing concrete/masonry sealers, as well as expand and clarify the averaging provision to provide additional flexibility to manufacturers.

Pursuant to the California Environmental Quality Act (CEQA) (California Public Resources Code §§21000 et seq.), a Draft Subsequent Environmental Assessment (SEA) was prepared to analyze potential adverse environmental impacts from implementing the 1999 amendments to Rule 1113. Based upon an initial evaluation in the Notice of Preparation and Initial Study (NOP/IS) prepared for the 1999 amendments and released to the public on October 28, 1998, the following environmental topics were identified as having the potential to be adversely affected by the proposed amendments and are analyzed in this document: air quality, water resources, and public services. Additionally, based on comments received on the NOP/IS and at various Industry Working Group meetings and industry meetings, this Draft SEA also includes an analysis of the following environmental topics: transportation/circulation, solid/hazardous waste, hazards, and human health. Results of that analysis indicated that the 1999 amendments would not generate any significant adverse environmental impacts. The Final SEA for the 1999 amendments to Rule 1113 was certified by the SCAQMD Governing Board on May 14, 1999.

After adoption of the 1999 amendments to Rule 1113, three lawsuits were filed against the SCAQMD that were subsequently consolidated as one matter by the court. Although the SCAQMD prevailed in the trial court, on June 24, 2002, the Court of Appeal reversed the decision of the trial court, holding that two amendments to address user concerns that were made after the notice of public hearing was published were so significant as to require a continuance of the Board hearing and as a result, the Court of Appeal vacated the SCAQMD's adoption of the 1999 amendments to Rule 1113. In response to the

Court's decision to vacate the 1999 amendments to Rule 1113, the SCAQMD is proposing to readopt the 1999 amendments and incorporate the modifications to the 1999 amendments that were made after the notice of public hearing was published into the currently proposed amendments. In connection with readopting the 1999 amendments to Rule 1113 plus the modifications, the SCAQMD has prepared this Draft SEA to evaluate potential adverse environmental impacts of the 1999 amendments as revised. This Draft SEA incorporates the analysis of environmental impacts from the 1999 Final SEA for proposed amended Rule 1113, updated environmental analysis based on the modifications incorporated into the currently proposed project, and updated information on the availability and characteristics of coatings that comply with the VOC content limits of the currently proposed amendments to Rule 1113.

On July 20, 2001, in response to a concern raised by a coating manufacturer, the SCAQMD Governing Board approved a new category for clear wood finish brushing lacquers with an allowable VOC content of 680 grams per liter to be lowered to 275 grams per liter by January 1, 2005. The rule amendments also established labeling and reporting requirements for such brushing lacquers to ensure their proper use and thus minimize emissions. Although the 1999 amendments are not currently effective, the new limit for clear wood finish brushing lacquers established in July 2001 remain in effect. A Final EA was prepared for the 2001 amendments to Rule 1113 to evaluate potential adverse environmental effects of those amendments. The results of that analysis have been incorporated into this Draft SEA.

LEGISLATIVE AUTHORITY

The California Legislature created the SCAQMD in 1977 (Lewis-Presley Air Quality Management Act, Health and Safety Code §§40400 et seq.), as the agency responsible for developing and enforcing air pollution control rules and regulations within the SCAQMD's area of jurisdiction. By statute, the SCAQMD is required to adopt an AQMP demonstrating compliance with all state and national ambient air quality standards for the SCAQMD's area of jurisdiction [Health and Safety Code §40460(a)]. Furthermore, the SCAQMD must adopt rules and regulations that carry out the AQMP [Cal. Health and Safety Code, §40440(a)]. The 1999 amendments to Rule 1113 were originally adopted pursuant to these mandates. Because of the substantial VOC emission reductions anticipated for the 1999 amendments (21.8 tons per day), it is necessary for the SCAQMD to move expeditiously to readopt these amendments to ensure attainment of the state and national ambient air quality standards for ozone by the timeframes mandated under state and federal law.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

PAR 1113 is a "project" as defined by the CEQA (Cal. Public Resources Code §§21000 et seq.). The SCAQMD is the lead agency for this project and is preparing the appropriate environmental analysis pursuant to its certified regulatory program (SCAQMD Rule 110). California Public Resources Code §21080.5 allows public agencies with regulatory programs to prepare a plan or other written document in lieu of an environmental impact report once the Secretary of the Resources Agency has certified the regulatory program. The Secretary of the Resources Agency certified the SCAQMD's regulatory program on March 1, 1989.

Rule 110 requires an assessment of anticipated environmental impacts as well as an analysis of feasible methods to substantially reduce any significant adverse environmental impacts. To fulfill the purpose and intent of Rule 110, the SCAQMD has prepared this Draft SEA to address the potential adverse environmental impacts associated with implementing PAR 1113. This Draft SEA is intended to: (a) provide the lead agency, responsible agencies, decision makers and the general public with information on the environmental effects of the proposed project; (b) be used as a tool by decision makers to facilitate decision making on the proposed project; and c) respond to the court decision vacating the 1999 amendments to Rule 1113.

PREPARATION OF A SUBSEQUENT ENVIRONMENTAL ASSESSMENT

As previously noted, the SCAQMD is required to prepare and adopt an AQMP containing strategies, i.e., control measures for attaining and maintaining all of the state and national ambient air quality standards. The last AQMP was adopted in 1997[1] and amendments were made in December 1999. The 1999 amendments did not affect the control measure for architectural coatings. As part of that effort, a program EIR for the 1997 AQMP was prepared pursuant to CEQA Guidelines §15168(a)(3) because the AQMP is related to the issuance of rules, regulations, plans or other general criteria to govern the conduct of a continuing program. The 1997 AQMP EIR evaluated all control measures contained in the plan, including control measure (CM) CTS-07, which this project implements. As permitted under §15168, the 1997 AQMP Program EIR dealt with the cumulative impacts of all AQMP control measures including CM CTS-07. In addition, that document found no project-specific significant environmental impacts associated with the implementation of CM CTS-07 at that time. The 1997 AQMP EIR is incorporated herein by reference. The 1997 AQMP EIR was challenged by the paint

[1] Amendments to the 1997 AQMP were adopted by the SCAQMD Governing Board to address the USEPA's proposed (at that time) disapproval of the 1997 AQMP. In conjunction with the 1999 amendments to the 1997 AQMP, a Supplemental Environmental Impact Report (EIR) to the previously certified Final EIR was prepared to analyze potential adverse impacts of the 1999 amendments.

industry as to its evaluation of CTS-07. That challenge was rejected by the Superior Court in February of 1999. This decision was upheld by the Court of Appeal.

To analyze potential adverse impacts from implementing 1997 AQMP control measure CTS-07, the SCAQMD prepared a Draft SEA in 1999, which was a subsequent CEQA document to the 1997 AQMP Program EIR. As explained in the subsection below entitled "The Court Order", the 1999 Draft SEA complied with the 1990 Dunn-Edwards Corporation, et. al. v. SCAQMD court order.

On June 24, 2002, the Court of Appeal vacated the 1999 Amendments to Rule 1113 on procedural grounds. As a result, the Court did not consider further the merits of the case. This means that the Final SEA for the 1999 amendments to Rule 1113 was not affected by the Court's decision. To address the Court's concerns and as part of readopting the 1999 amendments to Rule 1113 as modified, the SCAQMD has prepared this Draft SEA to the Final SEA for the 1999 amendments to Rule 1113 pursuant to CEQA Guidelines §15162.

CEQA DOCUMENTATION FOR RULE 1113 - ARCHITECTURAL COATINGS

In addition to this Draft SEA, a number of CEQA documents have been prepared for previous amendments to Rule 1113. The following subsections briefly summarize the previously prepared CEQA documents for Rule 1113.

July 2001 – Final Environmental Assessment - Proposed Amendments to Rule 1113 - Architectural Coatings

In July 2001, the SCAQMD Governing Board adopted amendments to Rule 1113. The amendments included the creation of a new coating category for clear wood finish brushing lacquers with an allowable VOC content of 680 grams per liter until January 1, 2005 when the clear wood finish brushing lacquers are limited to a VOC content of 275 grams per liter. The rule amendments also established labeling and reporting requirements for such brushing lacquers to ensure their proper use and thus minimize emissions. By postponing compliance with the existing VOC content limit requirement for lacquers in general, the EA prepared for this amendment concluded that 162 pounds of anticipated VOC emission reductions per day would be foregone until the clear brushing lacquers are required to comply with the final VOC content limit in 2005.

May 1999 – Final Subsequent Environmental Assessment - Proposed Amendments to Rule 1113 - Architectural Coatings

In May 1999, the SCAQMD Board adopted amendments to Rule 1113. The amendments call for a reduction of the allowable VOC content limit per liter of coating from the following coating categories: industrial maintenance; non-flats; quick-dry enamels; primers, sealers, and undercoaters; quick-dry primers, sealers, and undercoaters; stains; roof coatings; and waterproofing wood sealers. PAR 1113 also added several new coating categories, high temperature industrial maintenance coatings, rust preventative coatings, bituminious roof coatings, recycled flats and nonflats, essential public service coatings, floor coatings, and waterproofing concrete/masonry sealers, as well as expanded and clarified the averaging provision to provide additional flexibility to manufacturers. At full implementation of the amendments, the overall VOC emission reductions are approximately 21.8 tons per day by year 2010.

A NOP/IS (included herein as Appendix B) was distributed to responsible agencies and interested parties for a 30-day review and comment period ending December 1, 1998. The NOP/IS identified potential adverse impacts for the following environmental topics: air quality, water resources (e.g., water demand and water quality), and public services. The SCAQMD received 10 comment letters during the public comment period. Additionally, CEQA-related comments were received during oral testimony given at a Public Workshop/CEQA Scoping Meeting held December 9, 1998, and during various Industry Working Group and other industry meetings. SCAQMD staff's responses to the CEQA- related comments submitted on the NOP/IS as well as the comments provided at the CEQA Scoping Meeting, and during various Working Group and industry meetings are presented in Appendix C of this Draft SEA.

A Draft SEA was released for a 30-day public review and comment period from March 23, 1999 to April 21, 1999. The Draft SEA analyzed potential adverse environmental impacts from implementing proposed project to the following environmental topics: air quality, water resources, public services, transportation/circulation, solid/hazardous waste, hazards, and human health. The Draft EA concluded that the proposed project would not generate significant adverse impact in any environmental areas. Seven comment letters were received from the public and responded to in a Final SEA, which was certified by the SCAQMD Governing Board on May 14, 1999. On June 24, 2002, the Court of Appeal vacated the SCAQMD's adoption of the 1999 amendments and, therefore, these amendments are not currently in effect.

November 1996 – Final Subsequent Environmental Assessment - Proposed Amendments to Rule 1113 - Architectural Coatings

In November 1996, the SCAQMD Board adopted amendments to Rule 1113. These amendments reduced the VOC content limits of four coating categories: lacquers, flats (interior and exterior), traffic coatings, and multi-color coatings, resulting in an overall net reduction of 10.3 tons per day VOC emissions from this source category. In addition, the amendments temporarily increased the VOC content limits for four coating categories. Other components of the proposed amendments included addition of and modification to some definitions, updating the analytical test methods, and establishing an averaging methodology for flats to provide flexibility for complying with future VOC content limits.

Subsequent to the adoption of the amendments to Rule 1113, industry filed three separate lawsuits, questioning the validity of the proposed future limits for the lacquer and flat coating categories. The SCAQMD has prevailed at the Superior Court level in all three cases.

August 1996 – Final Environmental Assessment - Proposed Amendments to Rule 1113 - Architectural Coatings

These amendments incorporated an exemption from the VOC limits for coatings sold in containers one-quart size or less. The analysis in the Final Environmental Assessment concluded that adopting a small container exemption would result in significant adverse air quality impacts.

February 1990 - Determination of No Significant Impacts - Proposed Amendments to Rule 1113 - Architectural Coatings.

In February 1990, the SCAQMD Governing Board adopted amendments to Rule 1113 - Architectural Coatings that were based on the California Air Resources Board (CARB) and California and Air Pollution Control Officers Association (CAPCOA) Suggested Control Measure (SCM). The 1990 amendments included the following provisions: exemptions for 11 categories of specialty coatings were eliminated, leaving only exemptions for quart or smaller containers and emulsion type bituminous pavement sealers; lower VOC content limits for 15 new coating categories; technology-forcing low VOC limits for ten existing coating categories effective December 1, 1993; consolidation of the industrial maintenance coating categories from ten to three; and reorganization of the subdivisions of the rule.

The 1990 Court Order

In 1990, the Dunn-Edwards Corporation challenged the 1990 amendments to Rule 1113 in court (Dunn-Edwards Corporation, et. al. v. SCAQMD). That case challenged, in part, the CEQA document prepared for the amendments to Rule 1113 adopted in February 1990, specifically the amendments that lowered the VOC limits for the following six coating categories: industrial maintenance high temperature coatings; industrial maintenance anti-graffiti coatings; industrial maintenance primers and topcoats; lacquers;

quick-dry primers and sealers; and quick-dry enamels. The lawsuit alleged that the CEQA document was inadequate because it did not fully analyze potential significant adverse air quality impacts in seven areas that were alleged to arise from implementing the lower VOC content limits. The SCAQMD prevailed in six of the seven alleged impact areas, but the lower court requested the SCAQMD to further study whether or not illegal thinning of coatings in the field resulted in a negative air quality impact before readopting the February 1990 amendments.

The results of an architectural coatings field study undertaken during the latter half of 1998 by CARB staff, with the help of local air pollution control and air quality management district personnel, suggest that there is not a significant amount of thinning resulting in noncompliant architectural coatings. Thirty-six percent of the coatings sampled were solvent-borne. Fifty-three percent of these were thinned with material containing volatile organic compounds. However, of all of the solvent-borne coatings sampled, only 14 percent were thinned and noncompliant with district rules. Overall, solvent-borne thinned, noncompliant coatings made up only five percent of all the coating observed.

While the SCAQMD agreed to study the illegal thinning issue, the plaintiff appealed the court's decision to dismiss their claims regarding the six other potential air quality impacts. In 1993, the Court of Appeals in a published decision (Dunn-Edwards Corporation, et. al. v. SCAQMD) rejected the plaintiffs' appeal. Plaintiffs then appealed the appellate decision to the California Supreme Court that denied review on December 2, 1993.

The CEQA analysis in the 1999 Final SEA and this Draft SEA includes an analysis of illegal thinning in the field and, therefore, complies with the court's request. The Orange County Superior Court upheld the 1999 Final EA as complying with the 1990 Court Order.

Other Rule 1113 Amendments

Rule 1113 has been amended a number of times since January 1, 1990, as summarized in the following bullet points. For each amendment described below a Notice of Exemption was prepared.

- **March 8, 1996 -** These amendments established a definition for aerosol coatings consistent with the CARB, revised the definition of exempt compounds by referencing Rule 102 - Definition of Terms, and created an exemption for aerosol coatings.

- **September 6, 1991-** These amendments created a new coating category, low-solids stain, and also incorporated a calculation method for determining VOC content on a materials basis. The amendment also prohibited use of Group II exempt compounds, including ozone-depleting chlorofluorocarbons (CFCs) and several toxic solvents.

- **December 7, 1990 -** These amendments incorporated new definitions for specialty coatings and established a specific VOC content limit in the table of standards.
- **November 2, 1990 -** These amendments incorporated new definitions for specialty coatings and established a specific VOC content limit in the table of standards.
- **February 2, 1990** These amendments incorporated new definitions for specialty coatings and established a specific VOC content limit in the table of standards.

INTENDED USES OF THIS DOCUMENT

In general, a CEQA document is an informational document that informs a public agency's decision-makers, and the public generally, of potentially significant adverse environmental effects of a project, identifies possible ways to avoid or minimize the significant effects, and describes reasonable alternatives to the project (CEQA Guidelines §15121). A public agency's decision-makers must consider the information in a CEQA document prior to making a decision on the project. Accordingly, this revised Draft EA is intended to: (a) provide the SCAQMD Governing Board and the public with information on the environmental effects of the proposed project; (b) be used as a tool by the SCAQMD Governing Board to facilitate decision making on the proposed project; and c) respond to the court decision vacating the 1999 amendments to Rule 1113

Additionally, CEQA Guidelines §15124(d)(1) requires a public agency to identify the following specific types of intended uses of a CEQA document:

1. A list of the agencies that are expected to use the EA in their decision-making;
2. A list of permits and other approvals required to implement the project; and
3. A list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies.

To the extent that local public agencies, such as cities, county planning commissions, etc., are responsible for making land use and planning decisions related to projects that must comply with the proposed amendments to Rule 1113, they could possibly rely on this EA during their decision-making process. Similarly, other single purpose public agencies approving projects at facilities complying with the proposed amendments to Rule 1113 may rely on this EA.

AREAS OF CONTROVERSY

In accordance to CEQA Guidelines §15123(b)(2), the areas of controversy known to the lead agency including issues raised by agencies and the public shall be identified in the EA. Table 1-1 highlights the areas of controversy raised by the public during the rule development process either in public meetings or in written comments.

TABLE 1-1

Areas of Controversy

	Area of Controversy	Topics Raised by Public	SCAQMD Evaluation
1.	More Thickness	Reformulated compliant water- and solvent-borne coatings are very viscous and, therefore, are difficult to handle during application.	Currently available low-VOC coatings are not necessarily formulated with a higher solids content and a higher solids content does not result in a significant reduction in the coverage area.
2.	Illegal Thinning	Thinning occurs in the field in excess by the SCAQMD rule limits. Thinning the coating reduces its viscosity to make them easier to handle and apply.	Thinning should not be a problem because a majority of the coatings that would comply with future limits will be waterborne formulations. Even if some thinning occurs, thinning would likely be done with water or exempt solvents.
3.	More Priming	Reformulated compliant low-VOC water- and solvent-borne topcoats do not adhere as well as higher-VOC solvent-borne topcoats to unprimed substrates, which must be primed with typical solvent-borne primers to enhance the adherence quality.	The material needed and time necessary to prepare a surface for coating is approximately equivalent for conventional and low-VOC coatings. More primers are not needed because low-VOC coatings possess comparable coverage to conventional coatings, similar adhesion qualities and consistent resistance to stains, chemicals and corrosion.
4.	More Topcoats	Reformulated compliant low-VOC water- and solvent-borne topcoats may not cover, build, or flow-and-level as well as the solvent-borne formulations. Therefore, more coats are necessary to achieve equivalent cover and coating build-up.	Both low-VOC and conventional coatings have comparable coverage and superior performance. With comparable coverage and equivalent durability qualities, additional topcoats for low-VOC coatings should not be required.
5.	More Touch-Ups and Repair Work	Reformulated compliant low-VOC water- and solvent-borne formulations dry slowly, and are susceptible to damage, such as sagging, wrinkling, alligatoring, or becoming scraped and scratched. These problems require additional coatings for repair and touch-up.	Based on the durability characteristics information contained in the coating product data sheets, low-VOC coatings and conventional coatings have comparable durability characteristics. It is not anticipated that more touch-up and repair work will be needed.
6.	More Frequent Recoating	Durability of the reformulated compliant water- and low-VOC solvent-borne coatings is inferior to the durability of the traditional solvent-borne coatings, and therefore, frequent recoating would be necessary resulting in greater total emissions.	Coating manufacturer's own data sheets indicate that the low-VOC coatings for both architectural and industrial maintenance applications are durable and long lasting. Durability qualities of the low-VOC coatings are comparable to the conventional coatings and thus, more frequent recoatings would not be necessary.

TABLE 1-1(CONCLUDED)

Areas of Controversy

	Area of Controversy	Topics Raised by Public	SCAQMD Evaluation
7.	Substitution	Consumers and contractors will substitute better performing coatings in other categories for use in categories with low compliance limits because reformulated compliant water- and low-VOC solvent-borne coatings are inferior to the durability and are more difficult to apply.	There are a substantial number of low-VOC coatings that have performance characteristics comparable to conventional coatings. Also, PAR 1113 prohibits the application of certain coatings in specific settings, and the type of performance desired in some settings would prohibit the use of certain coatings in those settings. PAR 1113 also requires that when a coating can be used in more than one coating category the lower limit of the two categories is applicable.
8.	More Reactivity	Reformulated compliant water- and low-VOC solvent-borne coatings contain solvents that are more reactive than the solvents used in conventional coating formulations. The use of waterborne coatings is typically recommended for use between May and October, which is peak season for ozone formation.	In the absence of actual reactivity numbers for the compounds contained in "traditional" solvent formations and compliant, low-VOC coatings, emission must be calculated in the standard manner of total VOC per unit of coating applied manner. A Reactivity Research Work Group, consisting of federal and state regulatory personnel, government and academic research scientists, air quality consultant and industry representatives, has been formed to improve the scientific basis on the reactivities of organic compounds. An initial assessment report was prepared which identified the state of science with respect to VOC reactivity. Additional work is needed in order to reduce the uncertainty associated with different approaches to assessing reactivity. A database of physical and chemical properties for common solvents has been developed to enable users to quickly evaluate properties of solvents.

EXECUTIVE SUMMARY

The organization of this Draft SEA is as follows: Chapter 1 – Legislative Authority and Executive Summary; Chapter 2 – Project Description; Chapter 3 – Existing Setting; Chapter 4 – Environmental Impacts and Mitigation Measures; and, Chapter 5 – Project Alternatives. The following subsections briefly summarize the contents of each chapter.

Summary of Chapter 1 – Legislative Authority and Executive Summary

This Chapter contains a discussion of the legislative authority of the SCAQMD to adopt rules and regulations to implement the current AQMP. It also provides the basis for preparing a subsequent CEQA document to the 1997 AQMP Final Program EIR. This chapter also provides a summary of the content of each chapter.

Summary of Chapter 2 – Project Description

In addition to including a description of the project location, Chapter 2 also includes a brief description of PAR 1113. Briefly, the proposed amendments to Rule 1113 would:

Reduce the VOC content limit for industrial maintenance; non-flats; primers, sealers, and undercoaters; quick-dry enamels; quick-dry primers, sealers, and undercoaters; roof coatings; stains; and waterproofing wood sealers; Interim limits as well as final compliance limits are proposed. In addition, it is proposed that small businesses have an extended compliance date;

Add several new coating categories, ~~bituminious roof coatings, chemical storage tank coatings, essential public service coatings~~, *bituminious roof primers*, floor coatings, high temperature industrial maintenance coatings, industrial maintenance coatings, nonflats, recycled coatings, roof coatings, rust preventative coatings, specialty primers, *zinc-rich IM primers*, and waterproofing concrete/masonry sealers;

Delete the current exemption for quick-dry primers, sealers, and undercoaters;

Clarify definitions for some categories to be consistent with the National Architectural/Industrial Maintenance (AIM) Rule;

Expand and simplify the existing Rule 1113 averaging provision to include additional coating categories and ceiling limits; and

Clarify labeling requirements.

For a complete description of the proposed amendments the reader is referred to Appendix A.

Summary of Chapter 3 - Existing Setting

Pursuant to the CEQA Guidelines §15125, Chapter 3 – Existing Setting, includes descriptions of those environmental areas that could be adversely affected by PAR 1113.

The following subsections briefly highlight the existing settings for those environmental areas that could be adversely affected by implementing PAR 1113.

Air Quality

Over the last decade and a half, there has been significant improvement in air quality within the area of the SCAQMD's jurisdiction. Nevertheless, several air quality standards are still exceeded frequently and by a wide margin. Of the National Ambient Air Quality Standards (NAAQS) established for six criteria pollutants (ozone, lead, sulfur dioxide, nitrogen dioxide, carbon monoxide, and PM10), the area within the SCAQMD's jurisdiction is only in attainment with the sulfur dioxide, nitrogen dioxide, and lead standards. Chapter 3 provides a brief description of the existing air quality setting for each criteria pollutant, as well as the human health effects resulting from each criteria pollutant.

Water

The State Water Resources Control Board (SWRCB) and the nine regional water quality control boards (RWQCB) are responsible for protecting surface and groundwater supplies in California, regulating waste disposal, and requiring cleanup of hazardous conditions (California Water §§13000 - 13999.16). In particular, the SWRCB establishes water-related policies and approves water quality control plans, which are implemented and enforced by the RWQCBs. Five RWQCBs have jurisdiction over areas within the boundaries of the SCAQMD's area of jurisdiction. These agencies also regulate discharges to state waters through federal National Pollution Discharge Elimination System (NPDES) permits. Discharges to publicly owned treatment works (POTW) are regulated through federal pre-treatment requirements enforced by the POTWs.

Total water demand within the district is estimated by the Metropolitan Water District of Southern California (MWD) to be approximately 1.9 million acre-feet[2] (MAF) in calendar year 2005. The MWD's service area includes southern Los Angeles county, including the San Gabriel and San Fernando Valleys, all of Orange County, the western portion of Riverside County, and the Chino Basin in southwestern San Bernardino County. The MWD estimates a supply of 3.0 MAF by year 2005, providing a potential reserve capacity of 1.1 MAF. Local water districts within the MWD service area drew the remaining water from local water sources. About 89 percent of water consumed in the MWD region goes to urban uses with the rest going to agriculture (Rodrigo, 1996).

Public Services

Public services offered and available within the Basin are extensive and numerous although statistical data specific to the Basin are not available. Information concerning

[2]One acre foot (AF) is equivalent to 325,800 gallons.

public services was obtained from references that outlined data by county or by the Southern California Association of Governments (SCAG) Region. The following public service areas are discussed in this section: schools, law enforcement, and fire protection.

Transportation/Circulation

The agencies that share authority for transportation-related programs in the SCAQMD's area of jurisdiction include the SCAG, the county transportation authorities, local government transportation departments, Caltrans, and the SCAQMD. For the purposes of the AQMP, however, the SCAQMD and SCAG share the responsibility for developing transportation-related control measures in the AQMP. SCAG develops transportation plans for the region, including the Regional Mobility Element (RME) and the Regional Transportation Improvement Program (RTIP), which detail all of the capital and non-capital improvements to the transportation system that will occur between now and 2010. This chapter also includes descriptions of the various transportation and transit systems.

Both federal conformity regulations and state law require transportation plans to show increases in average vehicle ridership, decreases in vehicle trips and vehicle miles traveled, and restrict growth in vehicle emissions. Currently, for home-to-work commute trips in the district, about 75.6 percent of people drive alone, 18.8 percent share a ride and 5.6 percent use public transit.

Solid/Hazardous Waste

Solid wastes consist of residential wastes (trash and garbage produced by households), construction wastes, commercial and industrial wastes, home appliances and abandoned vehicles, and sludge residues (waste remaining at the end of the sewage treatment process). A total of 32 Class III active landfills and two transformation facilities are located within the district with a total disposal capacity of 111,198 tons per day. Los Angeles County has 14 active landfills with a permitted capacity of over 58,000 tons per day. San Bernardino County has nine public and private landfills within the district's boundaries with a combined permitted capacity of 11,783 tons per day. Riverside County has 12 active sanitary landfills with a total capacity of 14,707 tons per day. Each of these landfills is located within the unincorporated area of the county and is classified as Class III. Orange County currently has four active Class III landfills with a permitted capacity of over 25,000 tons per day.

Hazards

Potential hazard impacts may be associated with the production, use, storage, and transport of hazardous materials. For the purposes of this Draft SEA, the term hazardous materials refers to both hazardous materials and hazardous wastes. Hazardous materials may be found at industrial production and processing facilities. Examples of hazardous materials used on a consumable basis include petroleum, solvents, and coatings.

Currently, hazardous materials are transported throughout southern California in great quantities via all modes of transportation including rail, highway, water, air and pipeline.

Hazard concerns are also related to the risks of explosions, the release of hazardous substances, or exposure to air toxics. State law requires detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of to prevent or mitigate injury to health or the environment in the event that such materials accidentally released. Federal laws, such as the Emergency Planning and Community-Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act or SARA) impose similar requirements.

This section also describes the reporting system for reporting accidental releases of hazardous materials. Data are provided for the number of hazardous materials releases in 1996, 1997, 1998, statewide and for the four counties within the SCAQMD's jurisdiction. In addition, data are provided for releases of materials that could be used to formulate conventional and future compliant architectural coatings.

Human Health

This section briefly describes the existing setting for human health as it is affected by emissions from existing coating formulations. As noted in this section, the actual effects of exposure to coatings depend on such factors as the exposure duration, potency of the solvents of concern, exposure frequency, and other factors. A table is included that shows the solvents that are currently used to formulate AIM coatings that are considered to be toxic substances. The table also shows the range of adverse human health effects for each toxic substance.

Summary of Chapter 4 – Environmental Impacts and Mitigation Measures

CEQA Guidelines §15126.2(a) requires a CEQA document to "identify and focus on the significant environmental effects of the proposed project… Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects."

The following subsections briefly summarize the analysis of potential adverse environmental impacts from the adoption and implementation of PAR 1113.

Air Quality

The adoption and implementation of PAR 1113 is expected to produce substantial long-term VOC emission reductions. The analysis concludes that air quality impacts associated with the proposed amendments to Rule 1113 will be insignificant.

Based on the analysis of potential direct and indirect air quality effects of implementing PAR 1113 in Chapter 4, it is concluded that once the lower VOC content limits are implemented the overall air quality effects of the PAR 1113 will be a VOC emission reduction of approximately 21.8 tons per day by the year 2010.

Eight areas of concern were identified that could result in increased indirect VOC emissions due to a requirement to lower the VOC content of coatings. The eight alleged impacts (raised in the industry's prior litigation) are: increased coating thickness, more thinning, more topcoats, more touch-ups, more priming, more frequent recoating, more substituted coatings, and reactivity. The first seven issues all essentially assert that the new formulations, either solvent-based or water-based, result in more coating use resulting in an overall increase in VOC emissions for a specific area covered or over time. The eighth issue involves the assertion that more reactive solvents will be used in the compliant reformulations than the solvents used in the solvent-based coatings. All eight areas were analyzed in depth in Chapter 4. The result of this analysis reveals that overall PAR 1113 will achieve significant VOC emission reductions.

Water Resources

Impacts on water resources are divided into two categories - water demand and water quality. Water resources impacts are considered significant if they cause changes in the course of water movements or of drainage or surface runoff patterns; substantially degrade water quality; deplete water resources; significantly increase toxic inflow to public waste water treatment facilities; or interfere with groundwater recharge efforts.

Water Demand

Increased water demand from the manufacturing and use of compliant water-borne coatings is evaluated in Chapter 4. The analysis concludes that water demand impacts associated with the proposed amendments to Rule 1113 will be insignificant. The analysis reveals that there is sufficient capacity to meet the water demand associated with the implementation of PAR 1113. Furthermore, the MWD and other water providers are currently exploring various strategies for increasing water supplies and maximizing the use of existing supplies. Options include storage of water from existing sources, use or storage of water unused by other states or agricultural agencies, and advance delivery of water to irrigation districts. These continuing and future water management programs assure that the area's full-service water demands will be met at all times.

No significant impacts are anticipated, therefore, no mitigation measures are necessary. Cumulative impacts are also considered not significant

Water Quality

Based upon the analyses, PAR 1113 is not expected to create significant adverse water quality impacts for the following reasons. Use of exempt solvents is expected to result in equivalent or lesser water quality impacts than currently used solvents since the exempt solvents are less toxic coalescing solvents. Further, because currently available compliant coatings are already based on water-borne technology, no additional water quality impacts from future compliant water-borne coatings are expected because these coatings are also expected to be water based. Finally, PAR 1113 is not expected to promote the use of compliant coatings formulated with hazardous solvents that could create water quality impacts.

No significant impacts are anticipated, therefore, no mitigation measures are necessary. Cumulative impacts are also considered not significant.

Public Services

Impacts on public services are divided into two categories – maintenance at public facilities and fire departments. Public Services impacts are considered significant if they will result in the need for new or altered public facilities or services or if fire departments would have to respond more frequently to accidental release incidences and conduct additional inspections.

Maintenance at Public Facilities

Based upon the qualitative and, when available, quantitative durability descriptions in the coating product information sheets, staff concluded that low VOC coatings have durability characteristics comparable to conventional coatings. ~~In addition, specific components of power, municipal wastewater, water, bridges and other roadways for essential public services that require protective coatings not widely available are allowed a slightly higher interim VOC content limit. However, the essential public service coating would be required to reach the original final compliance limit~~. Therefore, no significant public services (e.g., maintenance at public facilities) impacts are anticipated from the implementation of PAR 1113. As a result, no mitigation measures are necessary. Cumulative impacts are also considered not significant.

Fire Departments

There is not expected to be any significant increase in accidental hazardous materials releases due to the use of compliant coating materials. While potential additional trips may result, as shown in Chapter 4, any such increase would be insignificant. Additionally, as demonstrated in the "Human Health" and "Hazards" sections, future compliant coating materials are not expected to cause significant adverse human health impacts or risk of upset, so accidental release scenarios would not be expected to pose a significant risk to responding firefighters

No significant impacts are anticipated, therefore, no mitigation measures are necessary. Cumulative impacts are also considered not significant.

Transportation / Circulation

The potential additional trips caused by the disposal of coatings due to shorter shelf lives, pot lives, or lesser freeze-thaw capabilities as compared to conventional coatings are evaluated and presented in Chapter 4. The analysis concludes that transportation/circulation impacts associated with the proposed amendments to Rule 1113 will be insignificant. Therefore, no mitigation measures are necessary. Cumulative impacts are also considered not significant.

Solid / Hazardous Waste

The solid waste evaluation examined increased disposal of coatings due to shorter shelf lives, pot lives, or lesser freeze-thaw capabilities as compared to conventional coatings. The analysis included in Chapter 4 concluded that solid/hazardous waste impacts associated with the proposed amendments to Rule 1113 will be insignificant. Therefore, no mitigation measures are necessary. Cumulative impacts are also considered not significant.

Hazards/Risk of Upset

The increased usage of exempt solvents or coalescing solvents as a result of implementing PAR 1113 will not result in any significant increased risk of upset. These solvents are not significantly more flammable than the solvents, such as methyl ethyl ketone (MEK), toluene, xylene, ethylene glycol butyl ether (EGBE), that they are replacing. Further, it is anticipated that resin manufacturers and coating formulators will continue the trend of using less hazardous solvents such as Texanol, Oxsol 100, propylene glycol, ethylene glycol, etc., in their compliant water-borne coatings. It is expected that future compliant AIM coatings will contain less or non-hazardous materials compared to conventional coatings, resulting a net benefit. Therefore, hazard impacts as a result of the proposed amendments will be insignificant and no mitigation measures are necessary. Cumulative impacts are also considered not significant.

Human Health

The human health impact evaluation examined the potential increased long-term (carcinogenic and chronic) and short-term (acute) human health exposure associated with the use of various replacement solvents in complaint coating formulations. In the context of long-term exposure, the analysis in Chapter 4 concluded that the general public would not be exposed to long-term health impacts due to the intermittent application of coatings in general. Furthermore, coating applicators' long-term exposure to more toxic replacement solvents (e.g., diisocyanates) are eliminated by following the coating manufacturers', Occupational Safety Health Administration's (OSHA), and American Conference of Governmental Industrial Hygienists' (ACGIH) required and recommended safety procedures. Additionally, the trend by resin manufacturers and coating formulators to phase out the use of more toxic solvents (e.g., monomeric diisocyanates, EGBE, etc.) with less toxic solvents (e.g., polymeric diisocyanates, texanol, ethylene glycol, and propylene glycol) would further eliminate the long-term human health risks from the use of compliant coatings.

In response to comments received on the 1999 Draft SEA for PAR 1113, staff reevaluated the use of low- or zero-VOC two component IM systems containing diisocyanate compounds. The SCAQMD has refined its definition of industrial maintenance (IM) to prohibit the use of IM coatings in residential, commercial, and institutional settings. Based on actual field monitoring data, and the chemistry of the two component systems, staff has determined their use would not expose the public at large to significant adverse acute human health impacts. Test data shows the concentrations of diisocyanate compounds emitted during the application of these IM systems are below the established health protective thresholds. Thus, the previous limitation on spraying has been removed. For acute exposure to applicators, the use of the same safety procedures to reduce long-term health effects will also reduce short-term health effects associated with the use of replacement solvents.

Therefore, the general public as well as coating applicators will not be exposed to long-term or short-term significant adverse human health impacts as a result of the implementation of PAR 1113. Furthermore, no mitigation measures are necessary. Cumulative impacts are also considered not significant.

Mitigation

Table 1-1 summarizes the impacts and mitigation measures associated with the environmental impact areas that the SCAQMD analyzed for PAR 1113.

TABLE 1-2

Environmental Impacts from PAR 1113

Environmental Impact Area	Significance Determination	Mitigation Measures
Air Quality	Not Significant	None Required
Water Resources Water Demand Water Quality	 Not Significant Not Significant	 None Required None Required
Public Services Maintenance at Public Facilities Fire Departments	 Not Significant Not Significant	 None Required None Required
Transportation/Circulation	Not Significant	None Required
Solid/Hazardous Waste	Not Significant	None Required
Hazards	Not Significant	None Required
Human Health	Not Significant	None Required

Environmental Impacts Found Not To Be Significant

The Initial Study for PAR 1113 includes an environmental checklist of approximately 15 environmental topics. As discussed above, review of the proposed project at the NOP/IS stage identified three topics for further review in the Draft SEA. Comments received on the NOP/IS and a Public Workshop/CEQA Scoping Meeting held December 9, 1998, and during various Industry Working Group and other industry meetings identified three other environmental areas for further review. For the remaining nine environmental areas where the Initial Study concluded that the project would have no significant direct or indirect adverse effects on the remaining environmental topics, no comments were received on the NOP/IS or at the public meetings that changed this conclusion. Consistent with the 1997 AQMP EIR, SCAQMD staff has reaffirmed that there will be no significant impacts to the following environmental resources in the district as a result of implementing PAR 1113:

- Land Use and Planning
- Population and Housing
- Geophysical
- Biological Resources
- Energy and Mineral Resources
- Noise
- Aesthetics
- Cultural Resources
- Recreation

Other CEQA Topics

The CEQA Guidelines require a CEQA document to address the potential for irreversible environmental changes (§15126.2 (c)), growth-inducing impacts (§15126.2 (d)), and inconsistencies with regional plans (§15125 (d)). Consistent with the 1997 AQMP EIR, additional analysis of the proposed project confirms that it would not result in irreversible environmental changes or the irretrievable commitment of resources, foster economic or population growth or the construction of additional housing, or be inconsistent with regional plans.

Summary of Chapter 5 – Project Alternatives

Chapter 5 provides a discussion of alternatives to the proposed project even though such an analysis is not required since this Draft SEA finds no new significant impacts. The alternatives analyzed include measures for attaining the objectives of the proposed project and provide a means for evaluating the comparative merits of each alternative.

Table 1-2 lists the alternatives considered by the SCAQMD and how they compare to PAR 1113.

TABLE 1-3

Comparison of Adverse Environmental Impacts
of PAR 1113 to the Alternatives

Environmental Topic	**Alternative A** (No Project)	**Alternative B** (Extended Final Compliance Deadlines)	**Alternative C** (No Final IM//RP VOC Content Limits)	**Mitigation Measures**
Air Quality	Not Significant (loss of VOC emission reductions)	Not Significant (loss of VOC emission reductions in interim years)	Not Significant (loss of VOC emission reductions)	None Required
Water Resources				
Water Demand	Not Significant, less than PAR 1113	Not Significant, equivalent to PAR 1113	Not Significant, less than PAR 1113	None Required
Water Quality	Not Significant, less than PAR 1113	Not Significant, equivalent to PAR 1113	Not Significant, less than PAR 1113	None Required
Public Services				
Public Facility Maintenance	Not Significant, less than PAR 1113	Not Significant, equivalent to PAR 1113	Not Significant, less than PAR 1113	None Required
Fire Department	Not Significant, greater than PAR 1113	Not Significant, equivalent to PAR 1113	Not Significant, greater than PAR 1113	None Required
Transportation/ Circulation	Not Significant, less than PAR 1113	Not Significant, equivalent to PAR 1113	Not Significant, less than PAR 1113	None Required
Solid/Hazardous Waste	Not Significant, less than PAR 1113	Not Significant, equivalent to PAR 1113	Not significant, less than PAR 1113	None Required
Hazards	Not Significant, equivalent to PAR 1113	Not Significant, equivalent to PAR 1113	Not Significant, equivalent to PAR 1113	None Required
Human Health	Not Significant, greater than PAR 1113	Not Significant, equivalent to PAR 1113	Not Significant, greater than PAR 1113	None Required

Table 1-3 presents a matrix that lists the significant adverse impacts as well as the cumulative impacts associated with the proposed project and the project alternatives for all environmental topics analyzed. The table also ranks each impact section as to whether the proposed project or a project alternative would result in greater or lesser impacts relative to one another.

TABLE 1-4
RANKING OF ALTERNATIVES

Project/ Alts	Air Quality Impacts		Water Demand Impacts		Water Quality Impacts		Public Facility Maintenance Impacts		Fire Department Impacts		Transportation/ Circulation Impacts		Solid/Hazardous Waste Impacts		Hazards Impacts		Human Health	
	Proj.	Cum.	Proj.	Cum.	Proj.	Cum.	Proj.	Cum.	Proj.	Cum.	Proj.	Cum.	Proj.	Cum.	Proj.	Cum.	Proj.	Cum.
PAR 1113	*(1)*		*(3)*		*(3)*		*(3)*		*(1)*		*(3)*		*(3)*		*(1)*		*(2)*	
Alt. A	*(4)*		*(1)*		*(1)*		*(1)*		*(3)*		*(1)*		*(1)*		*(1)*		*(2)*	
Alt. B	*(2)*		*(3)*		*(3)*		*(3)*		*(1)*		*(3)*		*(3)*		*(1)*		*(1)*	
Alt. C	*(3)*		*(2)*		*(2)*		*(2)*		*(2)*		*(2)*		*(2)*		*(1)*		*(2)*	

Notes: The ranking scale is such that 1 represents the least impacts and subsequent higher number represent increasingly worse or more substantial adverse impacts.
The same two numbers in brackets for a project specific impact section means that these proposals would have the same impacts if implemented.
An X denotes either a project-specific significant adverse impact or cumulative significant adverse impact.
A denotes no significant adverse impact or no cumulative significant adverse impact.

Proj. = Project-Specific Impacts
Cum. = Cumulative Impacts

CHAPTER 2

PROJECT DESCRIPTION

Project Location

Background

Project Objective

Project Description

PROJECT LOCATION

The SCAQMD has jurisdiction over approximately 10,743 square miles (referred to hereafter as the district), consisting of the four-county South Coast Air Basin (Basin), the Riverside County portions of the Salton Sea Air Basin (SSAB) and the Mojave Desert Air Basin (MDAB). The Basin, which is a subarea of the district, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. The Basin includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The Riverside County portions of the SSAB and MDAB are bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley. The federal nonattainment area (known as the Coachella Planning Area) is a subregion of Riverside County and the SSAB that is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east (Figure 2-1).

BACKGROUND

Architectural and industrial maintenance (AIM) coatings are used to beautify and protect homes, office buildings, factories, and their appurtenances on a variety of surfaces - metal, wood, plastic, concrete, wallboard, etc. For example, AIM coatings are applied to the interior and exterior of homes and offices, factory floors, bridges, stop signs, roofs, swimming pools, driveways, etc. AIM coatings may be applied by brush, roller or spray gun; by do-it-yourselfers (DIY), painting contractors, or maintenance personnel.

AIM and other coatings are composed of: pigments, which give the paint its color and ability to hide the underlying surface, and are generally in the form of finely ground powders; binders (resins), in which the pigment particles are dispersed and that bind the pigment to the painted surface; carriers (solvents), used to keep the paint in a liquid state during application, and to otherwise aid in the application of the paint; and specialty chemicals (additives), necessary for other coating characteristics. The carriers and some specialty chemicals evaporate, leaving behind the film-forming components of the coating. The resins used in AIM coatings include acrylics, vinyls, alkyds, cellulosics, epoxies, urethanes, polyurethanes and several others. The carriers in solvent-based coatings are organic solvents such as alcohols, ketones, esters, glycols, glycol ethers, and aromatic or aliphatic hydrocarbons, and are usually VOCs. The carrier in a waterborne coating is water, although most waterborne coatings contain some VOCs, primarily glycols or texanol.

AIM coatings are usually purchased ready-to-use, although some come in two components that must be mixed prior to application. They are available in a wide range of colors, gloss, and performance characteristics. One important criterion for selecting coatings is durability. Coatings are expected to last from two to 10 years with the average expectation of five to seven years. Failure of coatings to stand up to the elements such as sunlight, weather, and cleaning can shorten the life of the coating and require more frequent recoating.

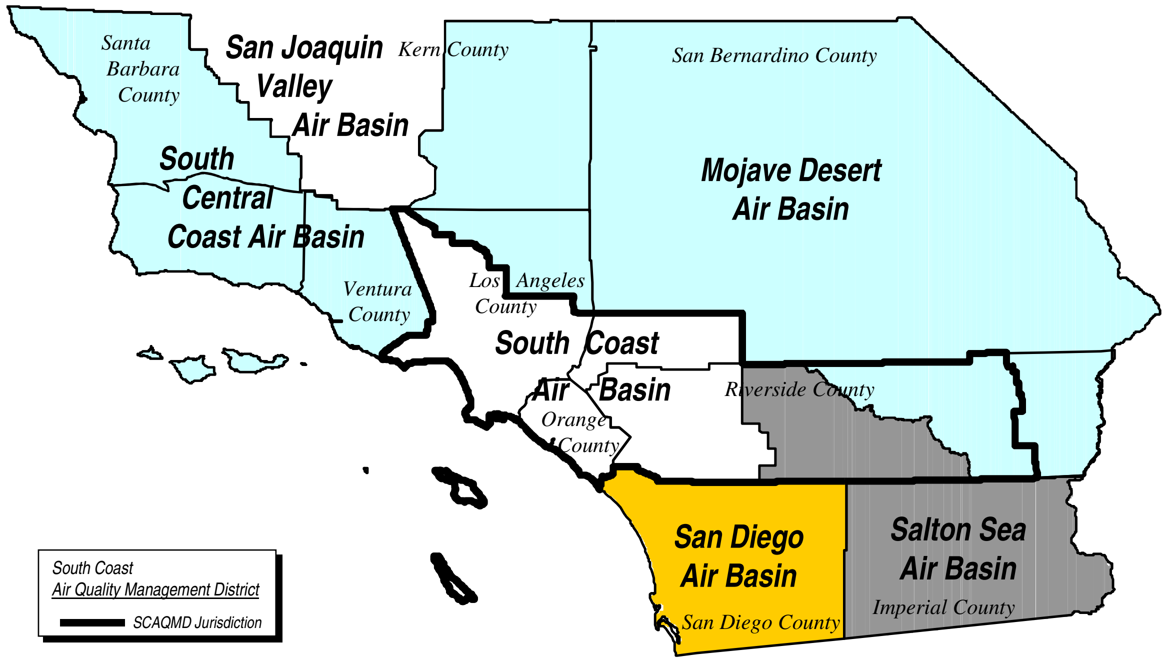

FIGURE 2-1

South Coast Air Quality Management District

A solvent may sometimes be used to thin a coating if it is too thick to spray or brush. Application problems caused by low temperature and high humidity can also be overcome by the addition of solvent to the coating. Waterborne coatings are thinned with water only, whereas solvent-based coatings can only be thinned with organic solvents. Similarly, brushes, rollers, and spray guns used with waterborne coatings are cleaned with water, while such equipment used with solvent-based coatings use organic solvents for cleanup. Generally, coatings are sold as 'ready-to-use' to eliminate the need for thinning in the field.

VOC emissions from architectural coating operations are regulated by SCAQMD Rule 1113. Under this rule, emissions are controlled by limiting the VOC content, measured in grams per liter, of the architectural coatings sold and applied in the district. Architectural coatings are defined by their application and use and include coatings which are applied to stationary structures including residential and commercial buildings; billboards; curbs and roads; and mobile homes. VOCs are emitted to the atmosphere from the evaporation of organic solvents used in industrial maintenance coatings, nonflats, flats, primers/sealers/undercoaters, waterproofing wood sealers, varnishes, wood preservatives, lacquers, fire retardant coatings, etc. The existing rule and PAR 1113 apply to those persons who supply, sell, apply, solicit the application of, and manufacture such coatings.

Rule 1113 was originally adopted September 2, 1977, to regulate VOC emissions from the application of architectural coatings and has been amended several times since the date of adoption. Most rule amendments subsequent to the original rule adoption have been to exempt certain coating categories from the 250 grams per liter (g/l) exterior coating VOC limit or the 350 g/l interior coating VOC limit. In contrast to the earlier amendments, the rule was amended on February 2, 1990, to further reduce VOC emissions from certain, previously exempted coating categories. The February 2, 1990 limits were based primarily on the CARB CAPCOA Suggested Control Measure (SCM) for architectural and industrial maintenance coatings. A consortium of California air pollution control districts, the CARB, U.S. Environmental Protection Agency (EPA) Region IX, and paint manufacturers developed the provisions in the SCM. Upon adoption of the lower VOC limits, coating manufacturers sued the SCAQMD, along with other air districts, over issues that they felt were not adequately addressed in the staff report or in the CEQA document. The suit stayed portions of the February 1990 amendments, as specified in the Superior Court judgment. Subsequent rule amendments adopted November 1990, December 1990, and September 1991 were not subject to the court judgment. Further reductions in VOC limits to Rule 1113 were adopted on November 8, 1996, and resulted in a net emission reduction of 10.3 tons per day of VOC. Subsequently, industry filed three separate lawsuits, questioning the validity of the proposed future limits for the lacquer and flat coating categories. The SCAQMD has prevailed in all three cases at the state court level.

In an effort to better understand the state of coating technology for industrial maintenance coatings, non-flats, and other coatings, in Spring 1996, the SCAQMD contracted with Eastern Michigan University (EMU) to conduct an informational study. The EMU study generally found that high-VOC, low-VOC, and zero-VOC coatings were commercially available for industrial maintenance; non-flat coatings; primers, sealers, undercoaters; water-proofing sealers; and stains. The EMU study also encountered difficulty with obtaining durability information for the low- and zero-VOC coatings in these coating categories from the coating manufacturers. As a result, the EMU study suggested that side-by-side comparisons be made for various coating characteristics between low- and zero-VOC coatings compared with high-VOC coatings.

Due to the lack of durability information contained in the EMU study, the SCAQMD contracted with National Technical Systems (NTS) to conduct a comparison study that evaluated the durability and application characteristics of the following coating categories: industrial maintenance; non-flat coatings; quick dry enamels, primers, sealers and undercoaters (PSU); quick dry PSUs; water proofing wood sealers; and stains. This study was called the Phase II Assessment Study of Architectural Coatings. The overall objective of this multi-year study was to analyze the application and durability characteristics of 94 individual coatings and 44 coating systems. The laboratory portion of this study was completed by May 1999, prior to the rule amendment. The SCAQMD thoroughly reviewed the results of the laboratory portion of the Phase II Assessment Study for Architectural Coatings with the TAC. In May 1999, the findings indicated that the zero- and low-VOC products studied showed similar and in some cases, better performance properties than the high-VOC coatings. Once the laboratory testing of the coatings was completed, an accelerated weathering study of the coating systems, as well as a real-time 24-month exposure test was initiated to analyze the effect of ambient conditions on the paint systems. The real time exposure testing began in April 2000 and continued through April 2002 at two sites with variable environmental conditions. One location was in Saugus and the other in El Segundo near the Los Angeles International Airport. At the end of the two-year outdoor test, the results showed that zero and low-VOC coatings are similar in weathering and durability characteristics and in many cases have outperformed the higher VOC based counterparts, corroborating the conclusions reached by the laboratory weathering and accelerated outdoor weathering studies.

Since the NTS study was initiated, staff continued to conduct it's technology assessment of low- and zero-VOC coatings affected by the proposed amendments and has gained additional information pertaining to their performance characteristics (See Appendices D and G, and the discussion in Chapter 4 on compliant low- and zero-VOC coatings characteristics). Based on this assessment, staff believes that both the proposed compliance limits and deadlines are achievable.

In addition to the NTS study and staff's technology assessment, CARB initiated and completed a manufacturer survey to refine their architectural coatings inventory for the state of California. The 1998 CARB Architectural Coatings Survey examined sales data of architectural coatings from over 150 manufacturers. The survey focused on all coating categories of architectural coatings, including non-flats, floor coatings, primers, sealers and undercoaters and stains available in California. The data from that survey demonstrated that coatings are available in all of these categories and are being used to meet current and future Rule 1113 requirements. CARB is currently conducting another comprehensive survey to update the latest sales data, which will further evaluate certain niche coatings, including high gloss non-flat coatings. The data collection phase is almost complete, and the results are expected to be published by CARB by the end of 2002. This updated inventory will assist staff in evaluating the current emissions inventory from use of architectural coatings, as well as providing a more accurate estimate of the emission reductions that can be achieved from each of the coating categories affected by the proposed amendments.

Subsequent to the SCAQMD Board's adoption of the 1999 amendments to Rule 1113, the CARB designed a SCM, or model rule, to be considered for adoption by the local air pollution control and air quality management districts (districts) in California. Under California law, the districts have the primary legal authority for adopting control measures for architectural coatings. The current SCM reflects advances in technology that have occurred since the last SCM was approved in 1989. The SCM specifies VOC limits for 47 coatings categories. The VOC limits for eleven of the 47 categories are lower than the predominant limits in most previous district rules. The VOC limits are generally similar to the interim VOC limits in Rule 1113, and more stringent than those in the USEPA's national architectural coatings rule. An averaging compliance option was proposed to provide additional flexibility to the regulated industry. The averaging provision allows manufacturers to average emissions of noncomplying products with emissions of overcomplying products. The averaging provision has a sunset date of January 1, 2005. The CARB Board approved the SCM with the modifications as described above at their June 22, 2000 Public Hearing. At the same meeting, the CARB Board certified a state-wide Program EIR prepared to assist the districts in the adoption of the SCM. Districts can rely on the Program EIR by incorporating it by reference in whatever CEQA documents a district chooses to prepare for its own architectural coatings rule. In the state of California, thirteen air districts (see Year 2002 Status Report in Appendix G) have amended their coatings regulations based on SCM that includes VOC limits that are as stringent as the interim limits included in Rule 1113 in nearly every category.

Rule 1113 requires a technology assessment for the future VOC limits for nonflats; primers, sealers, and undercoaters; quick-dry primers, sealers, and undercoaters; quick-dry enamels; waterproofing wood sealers; stains; floor; rust preventative; and industrial maintenance coatings as specified in paragraph (c)(2) by July 1, 2001 and July 1, 2005. In support of the technology assessment requirements, the District has completed the Phase II Assessment Study discussed above. Furthermore, in a continuing effort to compare low and high-VOC coatings in order to further substantiate that available products have characteristics similar to user expectations of higher VOC based products, the District also initiated a contract to study various coatings with KTA-Tator, Inc. The selection of the contractors, the protocol for conducting the study and the coatings evaluated, resulted from discussions and a consensus between the District and the TAC.

This most recent assessment compared high-, low- and zero-VOC formulations for four architectural coating categories: floor coatings, non-flat interior and exterior high gloss paints, interior and exterior primers, sealers and undercoaters and interior stains. The characteristics and performance of 31 coatings on various substrates were studied in the evaluation. Complete test results are shown in Appendix B1 of this report. Staff believes that overall, the results continue to substantiate current and future limits stated in the rule. Low-VOC products are currently available and, in all categories tested, work as well as and in some cases better than the higher-VOC counterparts. It is important to recognize that this study tested only a small portion of the low-VOC products currently available at retail and commercial outlets. While the test results do vary for some of the low-VOC products, all are currently being sold in the market, indicating acceptance by the consumer. The TAC and the

District are continuing to discuss the findings of the study.

Meetings with Industry Working Group

In September 1998, the SCAQMD established a working group comprised of coating manufacturers, painting contractors, representatives of trade organizations, and government representatives. Prior to the adoption of the 1999 amendments, the SCAQMD met with the working group seven times to evaluate and consider industry's concerns regarding the proposed amendments. A number of recommendations made by members of the Industry Working Group were incorporated into the proposed amendments, resulting in a modified version of PAR 1113. After the second working group meeting, which included a detailed discussion of PAR 1113, staff re-evaluated the proposal and extended the definition and compliance dates of quick-dry coating categories. The working group meetings have also served as a forum to discuss the innovative approaches presented by industry at the first working group meeting. To date, concepts for project alternatives including seasonality, reactivity, and an exemption for low volatility compounds have been discussed in detail. Other topics discussed in the working group meetings include the AQMD's emissions inventory, industry's proposal for a seasonality approach and averaging provisions, AQMP, and the AQMD's field application study. In summary, the working group meetings, as well as the public workshop and individual meetings with resin manufacturers and coating formulators, resulted in the addition of more categories, raised proposed VOC limits for some categories, extended compliance dates, and modified definitions of the 1999 amendments.

Pursuant to the workplan approved by the Board, the objective of the working group was to provide a forum for discussion of technological advancements in coatings material, market trends, and product performance related to Rule 1113 – Architectural Coatings. With regards to implementation of the workplan, staff held four meetings with the working group on October 12, 1999, November 3, 1999, January 19, 2000, and May 17, 2000. In these meetings, staff provided updates to the Phase II Assessment Study for Architectural Coatings, developed and finalized the implementation clarifications to the amended rule, and discussed the flat coatings technology assessment. Various other topics, such as the Settlement Agreement pertaining to the SIP litigation brought by several environmental organizations and the 1999 Amendments to the 1997 Air Quality Management Plan and their impact on the architectural coatings industry, were also discussed at these meetings. Lastly, staff presented the potential impacts of EPA's Draft Economic Incentive Program Guidance Document on the averaging program.

Staff held four meetings with the working group during the first six months of 2001. In these meetings, staff provided: updates on the Phase II Assessment Study for Architectural Coatings, status reports on the program, updates on the Essential Public Service Coating and NTS technology assessments, and discussed the development of the technology assessment for high gloss non-flats, specialty primers, floor coatings, and interior stains. Various other topics, such as technical conference and reactivity issues were also discussed.

Since mid-2001, many meetings have been held to discuss various aspects of the rule. Teleconferences with CARB were held on numerous occasions discussing Suggested Control Measures (SCM) for architectural coatings and future averaging compliance options as allowed in Rule 1113 and proposed in the SCM. A Working Group meeting was held on November 15, 2001 followed by a Technical Advisory Meeting (TAC) to discuss rule implementation and to address concerns with future limits. On December 5, 2001 the Rule 1113 TAC held a teleconference reviewing the ongoing technological assessments and other issues relative to Rule 1113. A follow-up teleconference was held on January 31, 2002.

On February 28, 2002 the District held a joint Rule 1113 Working Group and TAC Meeting to review the studies that were nearing completion and to address topics such as compliance with emission limits and the averaging compliance options allowed under section (c)(6) of Rule 1113. Members of the TAC were invited to participate in site visits to evaluate test panels that have been subject to outdoor weather exposure relative to a contract with the NTS. Discussions with the TAC regarding the results contained in the NTS report are continuing. Another teleconference with the TAC was held on May 17, 2002 to continue dialogue on the completed technological assessments and discuss future technological assessments through coordinated efforts of the AQMD and industry.

PROJECT OBJECTIVES

The overriding objective of the current proposed project is to readopt the 1999 amendments to Rule 1113 as modified, which were vacated by the Appellate Court in June 2002. Readopting the 1999 amendments to Rule 1113 as modified would then fulfill the original objectives associated with the 1999 amendments. These objectives include: implement, in part, control measure CTS-07 from the 1997 AQMP; achieving a 50 percent reduction in VOC emissions from AIM coatings called for in the 1997 AQMP control measure; add more coating categories; provide an extended compliance date for small businesses; and modify and improve existing definitions.

DESCRIPTION OF AFFECTED ARCHITECTURAL COATING CATEGORIES

Bituminous Roof ~~Coatings~~ *Primers*

Bituminous roof ~~coatings~~ *primers* are ~~coatings~~ formulated and recommended for roofing that incorporates bituminous coating materials.

~~Chemical Storage Tank Coatings~~

~~Chemical storage tank coatings are coatings used as interior tank linings for the storage of oxygenated solvents such as MEK, Methanol and MTBE, oxygenated solvent mixtures with~~

~~greater than ten percent by volume of MEK, Methanol and MTBE, and acid based products with a pH of less than or equal to three.~~

~~Essential Public Service Coating~~

~~Essential public service coating is a protective (functional) coating applied to components of power, municipal wastewater, water, bridges and other roadways, including transmission or distribution systems during repair and maintenance procedures.~~

Floor Coatings

Floor coating is a generic term for a variety of high performance coatings used in areas with abrasion as a result of foot traffic or vehicular traffic. Typical users include a variety of commercial and industrial users, with some limited residential applications. Typically, the coating system includes a primer and topcoat or a two-component single coat coating.

Although formulated using a number of resin systems, the highest performing floor coatings are based on epoxy and polyurethane systems. The newer polyurethane technology is based on both one-part and two-part coatings, with numerous products being offered as completely solventless systems.

Industrial Maintenance (IM) Coatings

The IM coating category is a generic term for a variety of high performance coatings, including primers, undercoats, and topcoats, used in areas with harsh environmental conditions such as extreme weather, corrosion, chemical, abrasion, and heat. Typical users include oil and gas production - onshore and offshore, refineries, petrochemical production and processing, marine, pulp and paper mills, bridges, manufacturing facilities, and water and waste treatment facilities. The coating system may include a primer and topcoat or a primer, midcoat, and topcoat or high-build single coat coatings.

In addition to high performance, alkyd-based enamels, inorganic zinc, vinyl, epoxy, polyurethane, and silicone-based resins are used to enhance the protection characteristics of these coatings, while achieving lower VOC content. The newer polyurethane technology is based on both one-part and two-part coatings, with some using reactive diluent technology where part of the solvent becomes a permanent part of the coating.

High Temperature IM

High temperature IM coatings are used to protect substrates, typically metals, that are exposed continuously or intermittently to temperatures above 400 degrees Fahrenheit. Typical uses include coatings for furnaces, stacks, power plants, refineries, and mufflers, as well as other substrates exposed to high temperatures. These coatings are formulated with a variety of resins such as aluminum rich, inorganic zinc rich, silicone, and epoxy-based formulations. Both solvent-borne and water-borne, polysiloxane-based high-temperature coatings are also commercially available.

Non-Flats

Nonflat coatings are interior and exterior coatings that have a gloss of greater than or equal to 15 on an 85 degree meter and greater than or equal to five on a 60 degree meter. Nonflat coatings represent the second largest category of architectural coatings and make up approximately 15 percent to 20 percent of total coatings used for residential development. This category is usually divided into three distinct subcategories called low-gloss (also known as satin or eggshell), medium-gloss (semi-gloss), and high-gloss. Nonflat coatings are most commonly used for interior and exterior wood trim, bathroom, kitchens, and other high traffic areas where repeated cleaning is necessary. However, some consumers also use the low-gloss nonflats for interior walls (drywall). Approximately 43 percent of all nonflats sold are for interior use only, 16 percent for exterior use only, and 41 percent for both interior or exterior use.

Quick-Dry Enamels

Quick-dry enamel is a non-flat coating category typically used where the substrate to be coated needs to dry quickly to minimize dust contamination, such as new home construction, or be returned to service quickly, such as a restaurant. The coated substrate should dry, as measured by ASTM 1640, to touch within two hours, should be tack free within four hours, and dry hard within eight hours for the coating to be listed as quick-dry. In typical residential application, quick-dry enamels are used for interior and exterior wood trim around windows, door jambs, doors, and possibly kitchen cabinetry. For older homes with wood siding, the quick-dry enamels may be used for the entire exterior surface. This category does not include enamels used in industrial environments.

Primer, Sealer and Undercoater (PSU)

The primer, sealer, and undercoater category is a generic term used to describe coatings, typically the initial coat, used to provide a smooth surface for subsequent coats or to provide a shield between the substrate and the subsequent coat or to provide adhesion for the topcoat. This category utilizes the gamut of available coating technologies in its formulations; alkyds, modified alkyds, oleoresin, epoxies, specialty resins, and emulsions are just a few of the formulations used.

Quick-Dry PSU

The quick-dry primer, sealer, and undercoater category is a generic term used to describe coatings, typically the initial coat, used to provide a smooth surface for subsequent coats or to provide a shield between the substrate and the subsequent coat or to provide adhesion for the topcoat. This quick-dry category is used for areas that also require a quick turnaround time, as described in the quick-dry enamel category section of this report. By definition, the dry to touch time needs to be less than 30 minutes, and the recoat time needs to be less than two hours, both tested by ASTM 1640.

This category utilizes the gamut of available coating technologies in its formulations; alkyds, modified alkyds, oleoresin, epoxies, specialty resins, and emulsions are just a few of the formulations used.

Recycled Coatings

Recycled coatings are coatings collected through Household Hazardous Waste Collection Programs or other waste minimization and resource recovery programs. Recycled coatings shall be formulated such that not less than 50 percent of the total weight consists of secondary post-consumer waste paint, with not less than ten percent of the total weight consisting of post-consumer waste paint.

Roof Coatings

Roof coatings are non-bituminous coatings formulated for application to exterior roofs and for the primary purpose of preventing penetration of the substrate by water, or reflecting heat and ultraviolet radiation. Metallic pigmented roof coatings which qualify as metallic pigmented coatings shall not be considered to be in this category, but shall be considered to be in the metallic pigmented coatings category.

Rust Preventive Coatings

Rust Preventative Coatings are coatings formulated and recommended for use in preventing the corrosion of metal surfaces in residential and commercial situations. This category includes the primers and topcoats for metal substrates. A specific category has been created in response to comments from industry, indicating a need for rust prevention and corrosion protection for metal substrates. Typical uses include handrails, fencing, metal doors, and gutters. These coatings rely on a variety of resin technologies, with recent development of acrylic emulsion formulations.

Specialty Primers

Specialty primers is a coating formulated and recommended for application to a substrate to seal fire, smoke or water damage; or to condition excessively chalky surfaces. An excessively chalky surface is one that is defined as having chalk rating of four or less as determined by ASTM D-4214 – Photographic Reference Standard No. 1 or the Federation of Societies for Coatings Technology "Pictorial Standards for Coatings Defects."

Stains

Stains can be either semi-transparent (interior and exterior) or opaque (semi-solid), and are generally used on wood. These type of coatings are especially used extensively in cabins and homes with soft wood exterior siding, as well as deck coating. They protect the wood from UV exposure, moisture, and minimize tannin bleed through.

Water Proofing Wood Sealers

Waterproofing wood sealers are used to protect wood, and other porous surfaces to seal against moisture damage. On wood, use of waterproofing sealers can prevent splitting, staining, and warping, as well as maintain the wood's true color and grain. These coatings rely on a variety of recently developed resin technologies, such as acrylic emulsion formulations and acetone-based formulations.

Zinc-Rich Industrial Maintenance Primers

Zinc-Rich Industrial Maintenance Primers are formulated to contain a minimum of 65 percent metallic zinc powder (zinc dust) by weight of total solids for application to metal substrates.

PROJECT DESCRIPTION

The current proposed amendments would implement Phase II of Control Measure #97CTS07 – Further Reductions from Architectural Coatings – Rule 1113. The proposed amendments to Rule 1113 include the following components, listed in the order they appear in the rule:

~~1. Add a definition of "Bituminous Roof Coatings" [Paragraph (b)(6)]~~

~~The definition of "Bituminous Roof Coatings" has been added in response to comments provided by the Roof Coatings Manufacturers Association.~~

~~2. Add a definition of "Chemical Storage Tank Coatings" [Paragraph (b)(8)]~~

~~The definition of "Chemical Storage Tank Coatings" has been added to the existing rule.~~

~~3. Add a definition of "Essential Public Service Coating" [Paragraph (b)(15)]~~

~~The definition of "Essential Public Service Coating" has been added in response to comments provided by the Metropolitan Water District and other specific public service providers.~~

Add a definition of "Bituminous Roof Primers" [Paragraph (b)(6)]

4. Add a definition for "Floor Coatings" [Paragraphs (b)(20)]:

   The definition of "Floor Coatings" has been added to the existing rule.

5. Add a definition for "High-Temperature Industrial Maintenance coatings" [Paragraphs (b)(24)]:

   The definition of "High-Temperature Industrial Maintenance coatings" has been added to the existing rule.

6. Delete the definition of "Industrial Maintenance Primers and Topcoats" and add a definition for "Industrial Maintenance Coatings" as originally adopted in February 1990 amendments, but deleted in November 1996 amendments to comply with the Superior Court judgement [Old Paragraph (b)(19), Paragraph (b)(25)]:

   The definition of "Industrial Maintenance Primers and Topcoats" based on the January 1990 rule is deleted and the definition of "Industrial Maintenance coatings" based on the February 1990 rule is added.

7. Add a definition for "Nonflat Coatings" [Paragraph (b)(33)]:

   A definition of "Nonflat coatings" is added to create a specialty category. The definition is the same as recently adopted by USEPA in the national AIM rule.

8. Add a definition for "Recycled Flats and Nonflats" [Paragraph (b)(39)]:

   A definition of " Recycled Flats and Nonflats" is added to create a specialty category, based on comments forwarded by Orange County Integrated Waste Management and other public service agencies.

9. Add a definition for "Roof Coatings" [Paragraph (b)(40)]:

   A definition of " Roof coatings" is added to clarify the difference between bituminous and non- bituminous roof coatings.

10. Add the definition of "Rust preventative coatings" [Paragraph (b)(41)]:

    A definition of "Rust preventative coatings" is added to create a specialty category.

11. Add the definition of "Specialty Primers" [Paragraph (b)(46)]:

    A definition of "Specialty primers " is added to create a specialty primer category.

12. Revise the definition of "Waterproofing Sealers to Waterproofing Wood Sealers" [Paragraph (b)(55)]:

The definition of "Waterproofing Sealers" is revised to "Waterproofing Wood Sealers" based on comments received from manufacturers of such products. This definition is specifically for waterproofing sealers used on wood substrates, such as decks and siding.

13. Add a definition for "Waterproofing Concrete/Masonry Sealers" [Paragraph (b)(56)]:

    The definition of "Waterproofing Concrete/Masonry Sealers" is revised based on comments received from manufacturers of such products. This definition is specifically for waterproofing sealers used on concrete and masonry.

    Add a definition of "Zinc-Rich IM Primers" [Paragraph (b)(59)]

14. Reduce the VOC content limit for IM coatings; non-flats; primers, sealers, and undercoaters; quick-dry enamels; quick-dry primers, sealers, and undercoaters; ~~bituminous roof coatings, roof coatings; essential public service coatings~~, *bituminous roof primers*, floor coatings; recycled flats and nonflats, rust preventative coatings; stains; *zinc-rich IM primers,* and waterproofing wood sealers (see Table 2-1). Interim limits as well as final compliance limits are proposed. In addition, it is proposed that small businesses have an extended compliance date;

15. Revise the "Averaging Provision" methodology [Paragraph (c)(6)]:

    The November 8, 1996 amendments included an "Averaging Provision" for flat coatings to provide an optional method of compliance for manufacturers of this coating product. The currently proposed amendments will expand the averaging provision to include nonflat coatings; floor coatings; rust preventative; primers, sealers, and undercoaters; quick-dry PSUs, quick-dry enamels, and IM coatings. Effective January 1, 2001, this provision will allow manufacturers to average, on a sales-weighted basis, the VOC contents of their coatings and allow them to manufacture and distribute coatings that have a VOC content higher than the proposed standards. Market-based approaches have been requested by industry as an option to compliance with the standards. The overall averaging program parallels the CARB's "Alternative Control Plan Regulation for Consumer Products."

    The Averaging Provision is a voluntary, flexible approach that will utilize a "bubble" concept. Under this program, manufacturers who voluntarily choose to comply with the rule under the averaging provision would select the coatings and develop a detailed plan that would demonstrate that the total VOC emissions under the plan would not exceed the emissions that would have resulted had the products been formulated to meet the proposed VOC standards. Under the plan, once approved, the manufacturers could sell products that exceed the VOC standards specified in the rule for these coatings, provided that the emissions from these high-VOC products will be sufficiently offset by the emissions from the products formulated to achieve VOC limits below the proposed standards.

16. Modify the requirements in paragraph (c)(2) to incorporate coatings manufactured under the Averaging Provisions specified in paragraph (c)(6).

17. Add ceiling limits applicable to averaging provision to reflect the original intent of the proposal.

18. Add a Technology Assessment requirement for nonflats, industrial maintenance coatings, floor coatings, waterproofing wood sealers, primers, sealers, and undercoaters, quick-dry primers, sealers, and undercoaters, quick-dry enamels, rust preventative coatings, stains and lacquer coatings. [subdivision (f)]:

    The SCAQMD commits to assessing the product availability of specific future VOC limits for nonflats, primers, sealers, and undercoaters, quick-dry primers, sealers, and undercoaters, quick-dry enamels, floor coatings, rust preventative coatings, industrial maintenance coatings, and waterproofing wood sealers prior to revised limit implementation dates. Staff commits to assessing the scientific basis for a reactivity-based ozone control strategy, in conjunction with industry.

19. Clarify sell-through provision applicable to coatings participating in an averaging provision.

For a complete description of PAR 1113, the reader is referred to Appendix A of this Draft SEA.

PROJECTED EMISSIONS REDUCTIONS

The November 1996 amendments to Rule 1113, which lowered the VOC content limits from lacquers, flats (interior and exterior), traffic coatings, and multi-color coatings, are projected to reduce VOC emissions by 10.3 tons per day by 2010. Implementation of PAR 1113 is currently estimated to result in approximately 21.8 tons per day of VOC emission reductions or approximately a 36 percent emission reduction compared to current emission levels for the Annual Average Inventory for this emission source category. The table below summarizes the current proposed changes in VOC limits and the associated projected emission reductions.

TABLE 2-1

PAR 1113 Proposed Emission Limits and Projected Emission Reductions for Affected Coating Categories

Coating Category	Current Limit[1] (g/l)	Proposed Limit[1] and Compliance Dates		Emission Reductions by 2010 (tons/day)
		g/l	Date	
~~Bituminous Roof Coatings~~[2]	~~300~~	~~250~~	~~01/01/03~~	~~n/a~~
~~Chemical Storage Tank Coating~~[2]	~~420~~	~~100~~	~~07/01/06~~	~~n/a~~
~~Essential Public Service Coating~~[2]	~~420~~	~~340~~	~~01/01/03~~	~~n/a~~
		~~100~~	~~07/01/06~~	~~n/a~~
Floor Coatings[2]	420	100	01/01/03	0.31
		50	07/01/06	0.16
Industrial Maintenance (IM) Coatings	420	250	01/01/03	2.90
		100	07/01/06	2.63
High Temperature IM Coatings[2]	No Limit	550	01/01/03	0.0
		420	07/01/06	not quantified
Non-Flats[2]	250	150	01/01/03	0.86
		50	07/01/06	6.55
Quick-Dry Enamel	400	250	01/01/03	1.08
		50	07/01/06	0.66
Primers, Sealers, Undercoaters	350	200	01/01/03	1.48
		100	07/01/06	0.73

[1] Grams of VOC per liter of coating, less water and less exempt compounds.
[2] New category.

TABLE 2-1 (CONCLUDED)

PAR 1113 Proposed Emission Limits and Projected Emission Reductions for Affected Coating Categories

Coating Category	Current Limit[1] (g/l)	Proposed Limit[1] and Compliance Dates		Emission Reductions by 2010 (tons/day)
		g/l	Date	
Quick-Dry Primers, Sealers, & Undercoaters[2]	350[3]	200	01/01/03	1.53
		100	07/01/06	0.34
Recycled Flat and Nonflat[2]	250	100	07/01/06	not quantified
Rust Preventative Coatings[2]	400	100	07/01/06	0.92
Specialty Primers	350	100	07/01/06	not quantified
Stains	350	250	01/01/03	1.13
Water-proofing Wood Sealers	400	250	01/01/03	0.52
			Total	**21.8**

[1] Grams of VOC per liter of coating, less water and less exempt compounds.
[2] New category.
[3] Currently exempt if manufacturers reports sales data.

CHAPTER 3

EXISTING SETTING

Existing Setting

Air Quality

Water Resources

Public Services

Transportation / Circulation

Solid / Hazardous Waste

Hazards

Human Health

EXISTING SETTING

In order to determine the significance of the impacts associated with a proposed project, it is necessary to evaluate the project's impacts against the backdrop of the environment as it exists at the time the notice of preparation is published. The CEQA Guidelines defines "environment" as "the physical conditions that exist within the area which will be affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance" (CEQA Guidelines §15360; see also Public Resources Code §21060.5). Furthermore, a CEQA document must include a description of the physical environment in the vicinity of the project, as it exists at the time the notice of preparation is published, from both a local and regional perspective (CEQA Guidelines §15125). Therefore, the "environment" or "existing setting" against which a project's impacts are compared consists of the immediate, contemporaneous physical conditions at and around the project site (Remy, et al; 1996).

A brief discussion for each existing environmental topic setting, e.g., air quality, water resources, public services, transportation/circulation, solid/hazardous waste, hazards, and human health, that could be adversely affected by PAR 1113 is presented in the following sections. For a more detailed discussion of current and projected future environmental settings in the district for air quality, water resources, public services, solid/hazardous waste, hazards, and human health, with and without additional control measures, please refer to the Final 1997 AQMP, including its Appendices, and the 1997 AQMP Final Environmental Impact Report (EIR). These existing setting topics are still considered to be relevant with regard to implementing AQMP control measures. Copies of the above-referenced documents are available from the SCAQMD's Public Information Center by calling (909) 396-3600.

ARCHITECTURAL COATING INDUSTRY

AIM coatings are the largest segment of the United States' total paint market. In 1996, shipments of AIM coatings accounted for just over half of the total industry shipments. Architectural coatings are sold to do-it-yourself (DYI) consumers, painting contractors, and commercial and industrial maintenance users through company stores, independent dealers, mass retailers, and home improvement centers.

The architectural coatings market is split between waterborne latex and alkyd or oil-based paints, with latex accounting for more than 85 percent of the volume. Mr. Chris Maby of ICI Paints in North America wrote, "As environmental legislation grows along with waterborne technology, latex paints will probably completely take over the DIY market." This trend has already been noted through the staff's technical assessment and further corroborated by the 1998 Draft CARB Survey Data.

Ongoing Analysis and Technology Assessment

Subsequent to the November 1996 amendments, staff initiated a technical assessment focussing on coating categories included in Phase II of Control Measure CTS07 – Further Emission Reductions from Architectural Coatings. The assessment clearly shows a wide availability of zero- and low-VOC coatings in categories included in Phase II. The manufacturers' data, as listed on their product literature, as well as some technical papers pertaining to performance comparisons, indicate performance of the lower VOC coatings equal to their conventional, high solvent counterparts. For certain coating characteristics, including but not limited to overall durability, the lower VOC coatings were considered superior than the higher solvent coatings. The higher solvent coatings generally exhibited superior application characteristics.

The SCAQMD also contracted with Eastern Michigan University (EMU) Coatings Research Institute to further evaluate the six of the eight issues raised by coating manufacturers (see the "Analysis of Industry Issues" section in Chapter 4) and contractors pertaining to coating categories in the current proposal and to provide recommendations for future compliance limits for the different coating categories. This study concluded that low- and zero-VOC coatings are currently available for the proposed coating categories, but did not reach conclusions regarding the overall performance of these coatings, as compared to current, solvent-based coating formulations.

SCAQMD staff is also working with CARB's Reactivity Research Advisory Committee, formed to evaluate reactivities of selected VOCs. Dr. William P. L. Carter, College of Engineering Center for Environmental Research and Technology, has been contracted by CARB to investigate the atmospheric ozone formation potential of selected VOCs emitted from consumer products and industrial sources. Staff is also actively participating in workshops conducted by the North American Research Strategy for Tropospheric Ozone to evaluate research studies conducted at the national level.

To obtain performance data regarding application and durability characteristics of currently available low- and zero-VOC coatings, the SCAQMD contracted National Technical Systems to do a side-by-side comparison of zero-, low-, and high-VOC coatings. Since this study was initiated, staff has performed its own technology assessment of these low- and zero-VOC coatings and has gained even more information pertaining to their performance characteristics. Based on this assessment, staff is confident that both the proposed compliance limits and deadlines are achievable.

1998 CARB Survey

The 1998 CARB survey data, based on quantities reported for sales in 1996, indicate total architectural coating sales of approximately 87 million gallons, resulting in over 72 million pounds of VOC emissions or a little more than 0.8 pounds of VOC emissions per gallon of coating. The CARB emissions inventory for AIM coatings estimate 45 percent of the total AIM coatings sold in California are sold within the four county Basin. Therefore, an estimated 39 million gallons of coatings were sold in the Basin in 1996, resulting in approximately 32 million pounds of VOC emissions.

According to the CARB survey, there are AIM coatings currently available that comply with the January 1, 2003 compliance date for most coating categories affected by PAR 1113 (Table 3-1). The CARB survey also shows that for some AIM coating categories, there are coatings currently available that comply with the January 1, 2005 compliance date (Table 3-1). These data indicate that low VOC AIM coatings are already available and being used for some applications.

TABLE 3-1

SUMMARY OF CARB SURVEY RESULTS ON AVAILABLE COMPLIANT COATINGS as of 1999

Coating Category	Number of Products in CARB Survey	SWA[a] VOC Content (g/l)	SWA[b] VOC Content (g/l)	Complies With 07/01/03 Limit		Complies With 07/01/2006 Limit	
				# of Coatings	% of Total Coatings*	# of Coatings	% of Total Coatings*
Floor Coatings	505	149	164	128	39%	65	28%
IM Coatings	2,754	435	124	743	27%	302	11%
High Temp. IM Coatings	204	367	222[c]	181	89%	165	81%
Nonflat Coatings	3,744	331	164	1,310	35%	112	3%
Quick-dry Enamels	118	403	n/a	0[d]	0[d]	0[d]	0[d]
Primer, Sealer & Undercoater (PSU)	647	384	101	431	67%	212	33%

TABLE 3-1 (CONCLUDED)

SUMMARY OF CARB SURVEY RESULTS ON AVAILABLE COMPLIANT COATINGS as of 1999

Coating Category	Number of Products in CARB Survey	SWA[a] VOC Content (g/l)	SWA[b] VOC Content (g/l)	Complies With 07/01/03 Limit		Complies With 07/01/2006 Limit	
				# of Coatings	% of Total Coatings*	# of Coatings	% of Total Coatings*
Quick-dry PSU Coatings	145	432	136	18	12%	11[e]	8%
Rust Preventative Coatings[f]	16	382	144	10**	63%**	0	0
Stains	1,319	412	203	345	26%	n/a	n/a

[a] Sales weighted average for solvent-based coatings
[b] Sales weighted average for water-based coatings.
[c] Less than one percent of the coatings are water-based coatings.
[d] Numerous nonflat coatings not included in this category also meet the definition of quick-dry enamel.
[e] Numerous PSU coatings not included in this category also meet the definition of quick-dry PSU coating.
[f] These include products specifically listed as rust preventative in the CARB study. Other coatings not included in this category were identified in the following coating categories: IM, nonflats, PSU, quick-dry PSU.
* Percent of total coatings are based on individual products listed in the Draft 1998 Architectural Coating Survey.
** Interim limit has been removed from proposal.

AIR QUALITY

It is the responsibility of the SCAQMD to ensure that state and federal ambient air quality standards are achieved and maintained in its geographical jurisdiction. Health-based air quality standards have been established by California and the federal government for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO2), particulate matter less than 10 microns (PM10), sulfur dioxide (SO2) and lead. These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution. The California standards are more stringent than the federal standards and in the case of PM10 and SO2, far more stringent. California has also established standards for sulfate, visibility, hydrogen sulfide, and vinyl chloride. The state and national ambient air quality standards for each of these pollutants and their effects on health are summarized in Table 3-1. The SCAQMD monitors levels of various criteria pollutants at 34 monitoring stations. The 2000 air quality data from SCAQMD's monitoring stations are presented in Table 3-2.

TABLE 3-2

Federal and State Ambient Air Quality Standards

	STATE STANDARD	FEDERAL PRIMARY STANDARD	MOST RELEVANT EFFECTS
AIR POLLUTANT	CONCENTRATION/ AVERAGING TIME	CONCENTRATION/ AVERAGING TIME	
Ozone	0.09 ppm, 1-hr. avg. >	0.12 ppm, 1-hr avg.>	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage
Carbon Monoxide	9.0 ppm, 8-hr avg. > 20 ppm, 1-hr avg. >	9 ppm, 8-hr avg.> 35 ppm, 1-hr avg.>	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide	0.25 ppm, 1-hr avg. >	0.053 ppm, ann. avg.>	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
Sulfur Dioxide	0.04 ppm, 24-hr avg.> 0.25 ppm, 1-hr. avg. >	0.03 ppm, ann. avg.> 0.14 ppm, 24-hr avg.>	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma
Suspended Particulate Matter (PM10)	30 µg/m^3, ann. geometric mean > 50 µg/m^3, 24-hr average>	50 µg/m^3, annual arithmetic mean > 150 µg/m^3, 24-hr avg.>	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children
Suspended Particulate Matter (PM2.5)		15 µg/m^3, annual arithmetic mean> 150 µg/m^3, 24-hour average>	Decreased lung function from exposures and exacerbation of symptoms in sensitive patients with respiratory disease; elderly; children.
Sulfates	25 µg/m^3, 24-hr avg. >=		(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage
Lead	1.5 µg/m^3, 30-day avg. >=	1.5 µg/m^3, calendar quarter>	(a) Increased body burden; (b) Impairment of blood formation and nerve conduction
Visibility-Reducing Particles	In sufficient amount to give an extinction coefficient >0.23 inverse kilometers (visual range to less than 10 miles) with relative humidity less than 70%, 8-hour average (10am – 6pm PST)		Nephelometry and AISI Tape Sampler; instrumental measurement on days when relative humidity is less than 70 percent

Table 3-3
2001 Air Quality Data – South Coast Air Quality Management District

Carbon Monoxide						
					No. Days Standard Exceeded[a]	
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. In ppm 1-hour	Max. Conc. In ppm 8-hour	Federal ≤9.5 ppm 8-hr.	State >9.0 ppm 8-hr.
LOS ANGELES COUNTY						
1	Central LA	362	6	4.57	0	0
2	Northwest Coast LA Co	361	4	3.00	0	0
3	Southwest Coast LA Co	365	7	5.14	0	0
4	South Coast LA Co	361	6	4.71	0	0
6	West San Fernando Valley	365	7	6.00	0	0
7	East San Fernando Valley	364	6	4.88	0	0
8	West San Fernando Valley	355	7	5.00	0	0
9	East San Gabriel Valley1	361	3	2.88	0	0
9	East San Gabriel Valley2	357	3	2.50	0	0
10	Pomona/Walnut Valley	365	5	3.43	0	0
11	South San Gabriel Valley	365	6	4.00	0	0
12	South Central LA Co	365	12	7.71	0	0
13	Santa Clarita Valley	361	6	3.14	0	0
ORANGE COUNTY						
16	North Orange Co	363	11	4.71	0	0
17	Central Orange Co	274*	8*	4.71*	0*	0*
18	North Coastal Orange Co	363	6	4.57	0	0
19	Saddleback Valley	365	3	2.38	0	0
RIVERSIDE COUNTY						
22	Norco/Corona	--	--	--	--	--
23	Metropolitan Riv Co1	356	5	3.43	0	0
23	Metropolitan Riv Co2	329*	6*	4.50*	0*	0*
24	Perris Valley	--	--	--	--	--
25	Lake Elsinore	355	2	2.00	0	0
29	Banning Airport	--	--	--	--	--
30	Coachella Valley1**	357	2	1.50	0	0
30	Coachella Valley2**	--	--	--	--	--
SAN BERNARDINO COUNTY						
32	NW San Bernardino Valley	364	3	1.75	0	0
33	SW San Bernardino Vally	--	--	--	--	--
34	Central San Bern Valley1	--	--	--	--	--
34	Central San Bern Valley2	365	4	3.25	0	0
35	East San Bernardino Valley	--	--	--	--	--
37	Central San Bern Mountains	--	--	--	--	--
38	East San Bern Mountains	--	--	--	--	--
	DISTRICT MAXIMUM		12	7.71	0	0

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
**Salton Sea Air Basin.
a) – The federal 1-hour standard (1-hour average CO> 35 ppm) and state 1-hour standard (1-hour average CO> 20 ppm) were not exceeded.

Table 3-3
(Continued)

Ozone

Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. In ppm 1-hour	Max. Conc. In ppm 8-hour	Health Advisory ≥ 0.15 ppm 1-hour	No. Days Standard Exceeded[a)] Federal > 0.12 ppm 1-hour	Federal > 0.08 ppm 8-hour	State >9.0 ppm 8-hr.
LOS ANGELES COUNTY								
1	Central LA	361	0.116	0.099	0	0	1	8
2	Northwest Coast LA Co	365	0.099	0.080	0	0	0	1
3	Southwest Coast LA Co	360	0.098	0.080	0	0	0	1
4	South Coast LA Co	360	0.091	0.070	0	0	0	0
6	West San Fernando V	365	0.140	1.117	0	2	7	25
7	East San Fernando V	356	0.129	1.104	0	2	5	15
8	West San Fernando V	361	0.160	0.120	1	1	9	28
9	East San Gabriel V1	365	0.189	1.131	2	9	18	36
9	East San Gabriel V2	362	0.190	0.135	5	13	31	61
10	Pomona/Walnut Valley	363	0.144	0.108	0	1	3	12
11	South San Gabriel V	365	0.132	0.100	0	1	2	7
12	South Central LA Co	365	0.077	0.061	0	0	0	0
13	Santa Clarita Valley	356	0.184	0.129	2	9	27	49
ORANGE COUNTY								
16	North Orange Co	360	0.114	0.090	0	0	2	4
17	Central Orange Co	274*	0.107*	0.071*	0*	0*	0*	2*
18	N Coastal Orange Co	365	0.098	0.073	0	0	0	1
19	Saddleback Valley	365	0.125	0.098	0	1	2	10
RIVERSIDE COUNTY								
22	Norco/Corona	--	--	--	--	--	--	--
23	Metropolitan Riv Co1	365	0.143	0.120	0	7	34	41
23	Metropolitan Riv Co2	--	--	--	--	--	--	--
24	Perris Valley	361	0.152	0.136	5	19	58	73
25	Lake Elsinore	348	0.151	0.120	1	12	46	61
29	Banning Airport	365	0.149	0.129	2	16	49	63
30	Coachella Valley1**	358	0.137	0.114	0	6	42	53
30	Coachella Valley2**	365	0.114	0.099	0	0	17	21
SAN BERNARDINO COUNTY								
32	NW San Bernardino V	365	0.174	0.138	6	14	33	53
33	SW San Bernardino V	--	--	--	--	--	--	--
34	Central San Bern V1	365	0.165	0.136	6	13	31	44
34	Central San Bern V2	365	0.184	0.144	5	18	39	55
35	East San Bernardino V	327*	0.167*	0.144*	7*	21*	52*	68*
37	Central San Bern Moun	365	0.171	0.139	12	26	74	88
38	East San Bern Moun	--	--	--	--	--	--	--
	DISTRICT MAXIMUM		0.190	0.144	12	26	74	88

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
b) – The federal 1-hour standard (1-hour average CO> 35 ppm) and state 1-hour standard (1-hour average CO> 20 ppm) were not exceeded.

Table 3-3
(Continued)

Nitrogen Dioxide					
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. In ppm 1-hour[b)]	Max. Conc. In ppm 24-hour	Average Compared To Federal Standard[c)] AAM in ppm
LOS ANGELES COUNTY					
1	Central LA	365	0.14	0.078	0.0378
2	Northwest Coast LA Co	365	0.11	0.080	0.0251
3	Southwest Coast LA Co	362	0.11	0.080	0.0250
4	South Coast LA Co	364	0.13	0.070	0.0308
6	West San Fernando Valley	359	0.09	0.060	0.0266
7	East San Fernando Valley	347	0.25	0.091	0.0419
8	West San Fernando Valley	365	0.15	0.086	0.0345
9	East San Gabriel Valley1	365	0.12	0.094	0.0331
9	East San Gabriel Valley2	365	0.12	0.067	0.0274
10	Pomona/Walnut Valley	365	0.13	0.095	0.0371
11	South San Gabriel Valley	363	0.14	0.076	0.0352
12	South Central LA Co	363	0.15	0.072	0.0369
13	Santa Clarita Valley	351	0.10	0.048	0.0239
ORANGE COUNTY					
16	North Orange Co	363	0.13	0.069	0.0275
17	Central Orange Co	274*	0.12*	0.069*	0.0293*
18	North Coastal Orange Co	365	0.08	0.063	0.0182
19	Saddleback Valley	--	--	--	--
RIVERSIDE COUNTY					
22	Norco/Corona	--	--	--	--
23	Metropolitan Riv Co1	362	0.15	0.064	0.0247
23	Metropolitan Riv Co2	--	--	--	--
24	Perris Valley	--	--	--	--
25	Lake Elsinore	352	0.19	0.102	0.0185
29	Banning Airport	343	0.24	0.057	0.0211
30	Coachella Valley1**	345	0.08	0.043	0.0175
30	Coachella Valley2**	--	--	--	--
SAN BERNARDINO COUNTY					
32	NW San Bernardino Valley	347	0.13	0.085	0.0384
33	SW San Bernardino Vally	--	--	--	--
34	Central San Bern Valley1	365	0.13	0.084	0.0358
34	Central San Bern Valley2	329*	0.11*	0.066*	0.0303*
35	East San Bernardino Valley	--	--	--	--
37	Central San Bern Mountains	--	--	--	--
38	East San Bern Mountains	--	--	--	--
	DISTRICT MAXIMUM		0.25	0.102	0.0419

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
**Salton Sea Air Basin.
b) – The state standard is 1-hour average > 0.25 ppm. No location exceeded state standard.
c) – The federal standard is annual arithmetic mean NO2 greater than 0.0534 ppm. No location exceeded this standard

Table 3-3
(Continued)

Sulfur Dioxide

Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. In ppm 1-hour[d)]	Max. Conc. In ppm 24-hour
LOS ANGELES COUNTY				
1	Central LA	365	0.08	0.010
2	Northwest Coast LA Co	--	--	--
3	Southwest Coast LA Co	365	0.09	0.012
4	South Coast LA Co	364	0.05	0.012
6	West San Fernando Valley	--	--	--
7	East San Fernando Valley	345	0.01	0.004
8	West San Fernando Valley	--	--	--
9	East San Gabriel Valley1	--	--	--
9	East San Gabriel Valley2	--	--	--
10	Pomona/Walnut Valley	--	--	--
11	South San Gabriel Valley	--	--	--
12	South Central LA Co	--	--	--
13	Santa Clarita Valley	--	--	--
ORANGE COUNTY				
16	North Orange Co	--	--	--
17	Central Orange Co	--	--	--
18	North Coastal Orange Co	343	0.01	0.007
19	Saddleback Valley	--	--	--
RIVERSIDE COUNTY				
22	Norco/Corona	--	--	--
23	Metropolitan Riv Co1	365	0.02	0.011
23	Metropolitan Riv Co2	--	--	--
24	Perris Valley	--	--	--
25	Lake Elsinore	--	--	--
29	Banning Airport	--	--	--
30	Coachella Valley1**	--	--	--
30	Coachella Valley2**	--	--	--
SAN BERNARDINO COUNTY				
32	NW San Bernardino Valley	--	--	--
33	SW San Bernardino Vally	--	--	--
34	Central San Bern Valley1	330*	0.01*	0.010*
34	Central San Bern Valley2	--	--	--
35	East San Bernardino Valley	--	--	--
37	Central San Bern Mountains	--	--	--
38	East San Bern Mountains	--	--	--
	DISTRICT MAXIMUM		0.09	0.012

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
**Salton Sea Air Basin.
d) – The state standards are 1-hour average >0.25 ppm and 24-hour average > 0.045 ppm. No location exceeded state standards. The federal standards are annual arithmetic mean SO_2 > 0.03 ppm, 3-hour average > 0.50 ppm, and 24-hour average > 0.14 ppm. SO_2 concentrations were well below the federal standards.

Table 3-3
(Continued)

Suspended Particulates PM10[e)]

Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max Conc. in µg/m³ 24-hour	No. (%) Samples Exceeding Standard: Federal > 150 µg/m³ 24-hour	State > 50 µg/m³ 24-hour	Annual Averages[h)]: AAM Conc. µg/m³	AGM Conc. µg/m³
LOS ANGELES COUNTY							
1	Central LA	61	97	0	20(33)	44.2	40.3
2	Northwest Coast LA Co	--	--	--	--	--	--
3	Southwest Coast LA Co	58	75	0	8(14)	37.1	34.4
4	South Coast LA Co	59	91	0	10(17)	37.4	34.8
6	West San Fernando V	--	--	--	--	--	--
7	East San Fernando V	61	86	0	14(23)	40.9	36.9
8	West San Fernando V	--	--	--	--	--	--
9	East San Gabriel V1	58	106	0	22(38)	45.3	39.9
9	East San Gabriel V2	--	--	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--	--	--
11	South San Gabriel V	--	--	--	--	--	--
12	South Central LA Co	--	--	--	--	--	--
13	Santa Clarita Valley	61	62	0	4(7)	32.0	28.5
ORANGE COUNTY							
16	North Orange Co	--	--	--	--	--	--
17	Central Orange Co	46*	93*	0*	9(20)*	36.0*	33.7*
18	N Coastal Orange Co	--	--	--	--	--	--
19	Saddleback Valley	57	60	0	3(5)	26.4	24.0
RIVERSIDE COUNTY							
22	Norco/Corona	54	109	0	18(33)	44.8	39.3
23	Metropolitan Riv Co1	117	136	0	78(67)	63.1	54.3
23	Metropolitan Riv Co2	--	--	--	--	--	--
24	Perris Valley	60	86	0	16(27)	40.8	36.0
25	Lake Elsinore	--	--	--	--	--	--
29	Banning Airport	54	219	1(1.9)	7(13)	35.1	26.7
30	Coachella Valley1**	49*	53 [k)]	0[k)]	1(2)[k)]	26.7[k)]	23.9[k)]
30	Coachella Valley2**	112[k)]	149[k)]	0[k)]	50(45)[k)]	50.2[k)]	44.3[k)]
SAN BERNARDINO COUNTY							
32	NW San Bernardino V	--	--	--	--	--	--
33	SW San Bernardino V	64	166	1(1.6)	27(42)	52.4	46.2
34	Central San Bern V1	60	106	0	34(57)	50.5	43.8
34	Central San Bern V2	60	106	0	31(52)	52.0	45.2
35	East San Bernardino V	49*	102*	0*	22(45)*	46.6*	39.6*
37	Central San Bern Moun	--	--	--	--	--	--
38	East San Bern Moun	--	--	--	--	--	--
	DISTRICT MAXIMUM		219	1	78	63.1	54.3

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
e) – PM10 samples were collected every 6 days (every 3 days at Station Numbers 4144 and 4157) using the size-selective inlet high volume sampler with quartz filter media.
f) – PM2.5 samples were collected every 3 days at all sites except for the following sites: Station Numbers 060, 072, 087, 3176, and 4144 where samples were taken every day, and Station Number 5818 where samples were taken every 6 days.
g) – Total suspended particulates, lead, and sulfate were determined from samples collected every 6 days by the high volume sampler method, on glass fiber filter media.
h) – Federal PM10 standard is AAM > 50 µg/m³; and state standard is AGM > 30 µg/m³

Table 3-3
(Continued)

Suspended Particulates PM2.5 [f]					
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. in $\mu g/m^3$ 24-hour	No. (%) Samples Exceeding Standard Federal > 65 µg/m3 24-hour	Annual Averages[i] AAM Conc. $\mu g/m^3$
LOS ANGELES COUNTY					
1	Central LA	334	73.4	4(1.2)	22.9
2	Northwest Coast LA Co	--	--	--	--
3	Southwest Coast LA Co	--	--	--	--
4	South Coast LA Co	317	72.9	1(0.3)	21.4
6	West San Fernando Valley	109	71.1	1(0.9)	18.5
7	East San Fernando Valley	117	94.7	4(3.4)	24.9
8	West San Fernando Valley	110	78.1	1(0.9)	20.9
9	East San Gabriel Valley1	308	79.7	4(1.3)	21.8
9	East San Gabriel Valley2	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--
11	South San Gabriel Valley	95	77.3	3(3.2)	26.1
12	South Central LA Co	116	73.1	3(2.6)	24.5
13	Santa Clarita Valley	--	--	--	--
ORANGE COUNTY					
16	North Orange Co	--	--	--	--
17	Central Orange Co	252*	70.8*	1(0.4)*	22.4*
18	North Coastal Orange Co	--	--	--	--
19	Saddleback Valley	102	53.4	0	15.8
RIVERSIDE COUNTY					
22	Norco/Corona	--	--	--	--
23	Metropolitan Riv Co1	325	98.0	19(5.8)	31.1
23	Metropolitan Riv Co2	106	74.9	5(4.7)	28.3
24	Perris Valley	--	--	--	--
25	Lake Elsinore	--	--	--	--
29	Banning Airport	--	--	--	--
30	Coachella Valley1**	107	44.7	0	10.8
30	Coachella Valley2**	113	33.5	0	12.2
SAN BERNARDINO COUNTY					
32	NW San Bernardino Valley	--	--	--	--
33	SW San Bernardino Vally	113	71.2	2(1.8)	26.2
34	Central San Bern Valley1	114	74.8	4(3.5	24.8
34	Central San Bern Valley2	111	78.5	5(4.5)	26.2
35	East San Bernardino Valley	--	--	--	--
37	Central San Bern Mountains	--	--	--	--
38	East San Bern Mountains	57	34.6	0	10.9
	DISTRICT MAXIMUM		98.0	19	31.1

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
**Salton Sea Air Basin.
f) – PM2.5 samples were collected every 3 days at all sites except for the following sites: Station Numbers 060, 072, 087, 3176, and 4144 where samples were taken every day, and Station Number 5818 where samples were taken every 6 days.
i) – Federal PM2.5 standard is AAM > $\mu g/m^3$

Table 3-3
(Continued)

Particulates TSP [g]				
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. in µg/m³ 24-hour	Annual Average AAM Conc. µg/m³
LOS ANGELES COUNTY				
1	Central LA	61	131	75.4
2	Northwest Coast LA Co	60	81	46.5
3	Southwest Coast LA Co	61	118	71.4
4	South Coast LA Co	68	113	67.2
6	West San Fernando Valley	--	--	--
7	East San Fernando Valley	--	--	--
8	West San Fernando Valley	60	88	49.6
9	East San Gabriel Valley1	59	178	93.9
9	East San Gabriel Valley2	--	--	--
10	Pomona/Walnut Valley	--	--	--
11	South San Gabriel Valley	59	146	76.9
12	South Central LA Co	58	385	90.2
13	Santa Clarita Valley	--	--	--
ORANGE COUNTY				
16	North Orange Co	--	--	--
17	Central Orange Co	--	--	--
18	North Coastal Orange Co	--	--	--
19	Saddleback Valley	--	--	--
RIVERSIDE COUNTY				
22	Norco/Corona	--	--	--
23	Metropolitan Riv Co1	57	296	123.7
23	Metropolitan Riv Co2	61	182	86.8
24	Perris Valley	--	--	--
25	Lake Elsinore	--	--	--
29	Banning Airport	--	--	--
30	Coachella Valley1**	--	--	--
30	Coachella Valley2**	--	--	--
SAN BERNARDINO COUNTY				
32	NW San Bernardino Valley	58	171	69.7
33	SW San Bernardino Vally	--	--	--
34	Central San Bern Valley1	60	237	102.1
34	Central San Bern Valley2	55	224	101.3
35	East San Bernardino Valley	--	--	--
37	Central San Bern Mountains	--	--	--
38	East San Bern Mountains	--	--	--
	DISTRICT MAXIMUM		385	123.7

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
**Salton Sea Air Basin.
g) – Total suspended particulates, lead, and sulfate were determined from samples collected every 6 days by the high volume sampler method, on glass fiber filter media.

Table 3-3
(Continued)

Source Receptor Area No.	Location of Air Monitoring Station	Lead g) Max Monthly Average Conc.j) µg/m³	Lead g) Max Quarterly Average Conc.j) µg/m³	Sulfate g) Max Conc. in µg/m³ 24-hour	Sulfate g) No. (%) Samples Standard State > 25 µg/m³ 24-hour
LOS ANGELES COUNTY					
1	Central LA	0.06	0.05	15.9	0
2	Northwest Coast LA Co	--	--	15.6	0
3	Southwest Coast LA Co	0.04	0.04	20.6	0
4	South Coast LA Co	0.05	0.04	15.9	0
6	West San Fernando Valley	--	--	--	--
7	East San Fernando Valley	--	--	--	--
8	West San Fernando Valley	--	--	13.4	0
9	East San Gabriel Valley1	--	--	14.1	0
9	East San Gabriel Valley2	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--
11	South San Gabriel Valley	0.07	0.05	14.5	0
12	South Central LA Co	0.23	0.12	15.4	0
13	Santa Clarita Valley	--	--	--	--
ORANGE COUNTY					
16	North Orange Co	--	--	--	--
17	Central Orange Co	--	--	--	--
18	North Coastal Orange Co	--	--	--	--
19	Saddleback Valley	--	--	--	--
RIVERSIDE COUNTY					
22	Norco/Corona	--	--	--	--
23	Metropolitan Riv Co1	0.04	0.03	10.7	0
23	Metropolitan Riv Co2	0.03	0.03	9.2	0
24	Perris Valley	--	--	--	--
25	Lake Elsinore	--	--	--	--
29	Banning Airport	--	--	--	--
30	Coachella Valley1**	--	--	--	--
30	Coachella Valley2**	--	--	--	--
SAN BERNARDINO COUNTY					
32	NW San Bernardino Valley	0.05	0.04	10.7	0
33	SW San Bernardino Vally	--	--	--	--
34	Central San Bern Valley1	--	--	10.7	0
34	Central San Bern Valley2	0.05	0.04	11.5	0
35	East San Bernardino Valley	--	--	--	--
37	Central San Bern Mountains	--	--	--	--
38	East San Bern Mountains	--	--	--	--
	DISTRICT MAXIMUM	0.23	0.12	20.6	0

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
**Salton Sea Air Basin.
g) – Total suspended particulates, lead, and sulfate were determined from samples collected every 6 days by the high volume sampler method, on glass fiber filter media.
J) – Federal lead standard is quarterly average > 1.5 µg/m³, and state standard is monthly average ≥ 1.5 µg/m³. No location exceeded lead standards. Special monitoring immediately downwind of stationary sources of lead was carried out at four locations in 2000. The maximum monthly average concentration was 0.57 µg/m³, and the maximum quarterly average concentration was 0.49 µg/m³, both recorded in Area 1, Central Los Angeles

Ozone

Unlike primary criteria pollutants that are emitted directly from an emissions source, ozone is a secondary pollutant. It is formed in the atmosphere through a photochemical reaction of VOC, NOx, oxygen, and other hydrocarbon materials with sunlight.

Ozone is a deep lung irritant, causing the passages to become inflamed and swollen. Exposure to ozone produces alterations in respiration, the most characteristic of which is shallow, rapid breathing and a decrease in pulmonary performance. Ozone reduces the respiratory system's ability to fight infection and to remove foreign particles. People who suffer from respiratory diseases such as asthma, emphysema, and chronic bronchitis are more sensitive to ozone's effects. In severe cases, ozone is capable of causing death from pulmonary edema. Early studies suggested that long-term exposure to ozone results in adverse effects on morphology and function of the lung and acceleration of lung-tumor formation and aging. Ozone exposure also increases the sensitivity of the lung to bronchoconstrictive agents such as histamine, acetylcholine, and allergens.

The national ozone ambient air quality standard is exceeded far more frequently in the SCAQMD's jurisdiction than almost every other area in the United States3. In the past few years, ozone air quality has been the cleanest on record in terms of maximum concentration and number of days exceeding the standards and episode levels. Maximum one-hour average and eight-hour average ozone concentrations in 2001 (0.19 ppm and 0.144 ppm) were 158 percent and 180 percent of the federal one-hour and eight-hour standards, respectively. Ozone concentrations exceeded the one-hour state standard at all, but two, monitored locations in 2001. In 1997, the U.S. EPA promulgated a new national ambient air quality standard for ozone. Soon thereafter, a court decision ordered that the U.S. EPA could not enforce the new standard until adequate justification for the new standard was provided. U.S. EPA appealed the decision to the Supreme Court. On February 27, 2001, the Supreme Court upheld U.S. EPA's authority and methods to establish clean air standards. The Supreme Court, however, ordered U.S. EPA to revise its implementation plan for the new ozone standard. Meanwhile, CARB and local air districts continue to collect technical information in order to prepare for an eventual SIP to reduce unhealthful levels of ozone in areas violating the new federal standard. California has previously developed a SIP for the current ozone standard, which has been approved by U.S. EPA for the South Coast Air Basin.

Carbon Monoxide

CO is a colorless, odorless gas formed by the incomplete combustion of fuels. CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs in the body. The ambient air quality standard for carbon monoxide is

[3] It should be noted that in 1999 and 2000 Houston, Texas exceeded the federal ozone standards on more occasions than the district and reported the highest ozone concentrations in the nation.

intended to protect persons whose medical condition already compromises their circulatory systems' ability to deliver oxygen. These medical conditions include certain heart ailments, chronic lung diseases, and anemia. Persons with these conditions have reduced exercise capacity even when exposed to relatively low levels of CO. Fetuses are at risk because their blood has an even greater affinity to bind with CO. Smokers are also at risk from ambient CO levels because smoking increases the background level of CO in their blood.

CO was monitored at 23 locations in the district in 2001. The national and state eight-hour CO standards were not exceeded at any location. The highest eight-hour average CO concentration of the year (7.71 ppm) was 81 percent of the federal standard.

Nitrogen Dioxide

NO2 is a brownish gas that is formed in the atmosphere through a rapid reaction of the colorless gas nitric oxide (NO) with atmospheric oxygen. NO and NO2 are collectively referred to as NOx. NO2 can cause health effects in sensitive population groups such as children and people with chronic lung diseases. It can cause respiratory irritation and constriction of the airways, making breathing more difficult. Asthmatics are especially sensitive to these effects. People with asthma and chronic bronchitis may also experience headaches, wheezing and chest tightness at high ambient levels of NO2. NO2 is suspected to reduce resistance to infection, especially in young children.

By 1991, exceedances of the federal standard were limited to one location in Los Angeles County. The Basin was the only area in the United States classified as nonattainment for the federal NO2 standard under the 1990 Clean Air Act Amendments. No location in the area of SCAQMD's jurisdiction has exceeded the federal standard since 1992 and the South Coast Air Basin was designated attainment for the national standard in 1998. In 2001, the maximum annual arithmetic mean (0.0419 ppm) was 78 percent of the federal standard (the federal standard is annual arithmetic mean NO2 greater than 0.0534 ppm.). The more stringent state standard (0.25 ppm) was never exceeded by any of the monitored stations in year 2001, and the South Coast Air Basin was designated attainment for the state standard in 1996. Despite declining NOx emissions over the last decade, further NOx emissions reductions are necessary because NOx emissions are PM10 and ozone precursors.

Particulate Matter

PM10 is defined as suspended particulate matter 10 microns or less in diameter and includes a complex mixture of man-made and natural substances including sulfates, nitrates, metals, elemental carbon, sea salt, soil, organics and other materials. PM10 may have adverse health impacts because these microscopic particles are able to penetrate deeply into the respiratory system. In some cases, the particulates themselves may cause actual damage to the alveoli of the lungs or they may contain adsorbed substances that are injurious. Children can experience a decline in lung function and an increase in respiratory symptoms from PM10 exposure.

People with influenza, chronic respiratory disease and cardiovascular disease can be at risk of aggravated illness from exposure to fine particles. Increases in death rates have been statistically linked to corresponding increases in PM10 levels.

In 2001, PM10 was monitored at 18 locations in the district. There were two exceedances of the federal 24-hour standard (150 μg/m3), while the state 24-hour standard (50 μg/m3) was exceeded at all 18 monitored locations. The federal standard (annual arithmetic mean greater than 50 μg/m3) was exceeded in five locations, and the state standard (annual geometric mean greater than 30 μg/m3) was exceeded at 14 locations.

In 1997, the U.S. EPA promulgated a new national ambient air quality standard for PM2.5, particulate matter 2.5 microns or less in diameter and a new PM10 standard as well. The PM2.5 standard complements existing national and state ambient air quality standards that target the full range of inhalable PM10. However, a court decision ordered that the U.S. EPA couldn't enforce the new PM10 standard until adequate justification for the new standard is provided. U.S. EPA is complying with the decision by considering separate fine (PM2.5) and coarse (PM2.5-10) standards. Meanwhile, CARB and local air districts continue to collect technical information in order to prepare for an eventual SIP to reduce unhealthful levels of PM2.5 in areas violating the new federal standards. California has previously developed a SIP for the current PM10 standard.

Sulfur Dioxide

SO2 is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Health effects include acute respiratory symptoms and difficulty in breathing for children. Though SO2 concentrations have been reduced to levels well below state and federal standards, further reductions in emissions of SO2 are needed to comply with standards for other pollutants (sulfate and PM10).

Sulfates

Sulfates are a group of chemical compounds containing the sulfate group, which is a sulfur atom with four oxygen atoms attached. Though not exceeded in 1993, 1996, 1997, and 1998, the state sulfate standard was exceeded at three locations in 1994 and one location in 1995, 1999, 2000 and 2001. There are no federal air quality standards for sulfate.

Lead

Lead concentrations once exceeded the state and national ambient air quality standards by a wide margin, but have not exceeded state or federal standards at any regular monitoring station since 1982. Though special monitoring sites immediately downwind of lead sources recorded very localized violations of the state standard in 1994, no violations were recorded at these stations since that time.

Visibility

Since deterioration of visibility is one of the most obvious manifestations of air pollution and plays a major role in the public's perception of air quality, the state of California has adopted a standard for visibility or visual range. Until 1989, the standard was based on visibility estimates made by human observers. The standard was changed to require measurement of visual range using instruments that measure light scattering and absorption by suspended particles.

Volatile Organic Compounds

It should be noted that there are no state or national ambient air quality standards for VOCs because they are not classified as criteria pollutants. VOCs are regulated, however, because reduction in VOC emissions reduces the rate of photochemical reactions that contribute to the formation of ozone. They are also transformed into organic aerosols in the atmosphere, contributing to higher PM10 and lower visibility levels.

Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations of VOCs because of interference with oxygen uptake. In general, ambient VOC concentrations in the atmosphere are suspected to cause coughing, sneezing, headaches, weakness, laryngitis, and bronchitis, even at low concentrations. Some hydrocarbon components classified as VOC emissions are thought or known to be hazardous. Benzene, for example, one hydrocarbon component of VOC emissions, is known to be a human carcinogen.

Architectural Coating Existing Emissions Inventory

Architectural and industrial maintenance (AIM) coatings represent one of the largest non-mobile sources of VOC emissions in the district -- larger than petroleum refining, larger than petroleum marketing, larger than degreasing and dry cleaning combined, and larger than the combined VOC emissions from the 950 largest VOC-emitting facilities. It has been estimated that 25 percent of all hydrocarbons used as solvents (293 million gallons in 1992) are used in paints and coatings.[4]

The emission inventories from the 1997 AQMP include VOC emissions from AIM coatings from 1987 to 2010. Baseline emissions, assuming no new rules, are reported in terms of average, annual-day emissions, and in terms of average, summer-day emissions. The average

[4] Stirring Up Innovation: Environmental Improvements in Paints and Adhesives, INFORM, Inc., 1994.

summer-day figures, also called seasonal or planning inventories, are the ones used for demonstrating ozone attainment. Future, controlled AIM VOC emissions, assuming the AQMP measures are adopted and implemented, are only reported in terms of average summer-day emissions. The 1997 AQMP emission data for AIM coatings are summarized in Table 3-4. Table 3-5 provides a breakdown of the emission inventories associated with these coatings.

TABLE 3-4

1997 AQMP VOC EMISSIONS INVENTORY (tons per day)

AIM Coating VOC Baseline	1987	1990	1993	1997	1999	2000	2002	2005	2008	2010
Annual Avg.	55.3	55.9	56.3	57.8	58.9	59.4	61.1	63.4	65.7	67.3
Summer Avg.	65.2	65.9	66.4	68.2	69.5	70.1	72.0	74.7	77.5	79.4
Total VOC Emissions All Sources	1818.5	1648.3	1240.2	996.6	916.0	891.4	858.9	810.4	785.5	770.1

Table 3-5 is based on the 1998 CARB AIM "Survey of Emissions from Solvent Use". Evaluation of the 1996 sales data indicates statewide AIM coating VOC emissions in 1996 of approximately 99 tons per day. Prorated by population to the Basin portion of AQMD, this results in 45 tons per day. This data does not include the clean-up and thinning solvents used as a part of the coating operation. The usage and emission values found in this report are subject to changes based on the final 1998 CARB Survey Report. See page 3-3 of this Draft SEA for updated usage and emission data.

TABLE 3-5

VOC EMISSIONS INVENTORY FOR AFFECTED COATING CATEGORIES

Categories	1997 Inventory (tons/day)	2010 Inventory (tons/day)
Floor Coatings	0.61	0.71
IM Coatings	6.48	7.52
High Temperature IM Coatings	0.04	0.05
Non-Flats	8.80	10.22
Quick-Dry Enamels	1.86	2.16
PSU	3.60	4.18
Quick-Dry PSU	2.68	3.11
Rust Preventive Coatings	0.89	1.03
Stains	2.16	2.51
Water-Proofing Wood Sealers	0.89	1.03
Total	**28.01**	**32.52**

Strategy for Attaining the National and State Ozone Standards

As required by federal law, the AQMD adopted the 1997 AQMP in November 1996. The AQMP is a comprehensive plan to achieve the national and state ambient air quality standards in the district, the area with the highest air pollution levels in the United States.

Based on the Urban Airshed Model simulation of the Basin, it was concluded in the 1997 AQMP that major reductions in emissions of VOCs and NOx are necessary to attain the air quality standards for ozone and PM_{10}. Earlier AQMPs contained the same conclusion. To attain the ozone standards, VOC emissions must be reduced from 1,366[5] tons per day in 1993 (the baseline inventory year for the 1997 AQMP) to 444 tons per day by 2010, a 68 percent reduction. NOx emissions must be reduced by 57 percent, from 1,321 tons per day to 571 tons per day.

The 1997 AQMP underscores the increasing role of pollution from areawide sources, including consumer products. As emissions from facilities and vehicles are reduced, the widespread areawide sources become a larger part of the inventory, and are included as the biggest area for potential reductions of VOC emissions.

It is estimated in the 1997 AQMP that without additional AIM regulations the summer-day average inventory for AIM coating emissions will increase due to population growth by the following: 68.2 tons per day in 1997; 74.7 tons per day by the year 2005; and 79.4 tons per day by the year 2010. If left unregulated, AIM coating emissions alone would account for more than 26 percent of the VOC emissions inventory targeted for 2010. To assist with attaining and maintaining the state and national ozone standards, the 1997 AQMP has a specific control measure (CTS-07) to reduce AIM VOC emissions by 50 percent by the year 2010, as well as a long-term measure requiring an additional 25 percent reduction in VOC emissions. The projected 62 tons per day emission reduction from control measure CTS-07, based on the Summer Planning Inventory, produces the largest VOC emissions reduction of all short- and long-term AQMP control measures. The proposed Rule 1113 amendments will implement Phase II of the control measure and will seek to reduce AIM emissions by approximately 36 percent.

Installation of air pollution control equipment is not feasible for reducing AIM coatings emissions, thereby leaving coating reformulation as the only possible means to achieve the required reductions. The current proposal emphasizes reformulation of existing coatings, primarily by using currently available, technologically-innovative resins, as well as utilizing the growing list of solvents from the definition of Exempt Compounds.

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[5] All emission figures in this section are based on the summer planning inventories.

WATER RESOURCES

California has an extensive regulatory program to control water pollution. The most important statute affecting water quality issues is the Porter-Cologne Act, which gives the State Water Resources Control Board (SWRCB) and the nine regional water quality control boards (RWQCB) broad powers to protect surface and groundwater supplies in California, regulate waste disposal, and require cleanup of hazardous conditions (California Water Code §§13000 - 13999.16). In particular, the SWRCB establishes water-related policies and approves water quality control plans, which are implemented and enforced by the RWQCBs. Five RWQCBs have jurisdiction over areas within the boundaries of the district. These Regional Boards include: Los Angeles, Lahontan, Colorado River Basin, Santa Ana, and San Diego.

It is the responsibility of each regional board to prepare water quality control plans to protect surface and groundwater supplies within its region. These plans must: identify important regional water resources and their beneficial uses, such as domestic, navigational, agricultural, industrial, and recreational; establish water quality objectives, limits or levels of water constituents or characteristics established for beneficial uses and to prevent nuisances; and present an implementation program necessary to achieve those water quality objectives. These plans also contain technical information for determining waste discharge requirements and taking enforcement actions. The plans are typically reviewed and updated every three years (California Water Code §13241).

California dischargers of waste, which “could affect the quality of the waters of the state” are required to file a report of, waste discharge with the appropriate regional water board (California Water Code §13260). The report is essentially a permit application and must contain information required by the regional board. After receipt of a discharge report, the regional board will issue "waste discharge requirements" analogous to a permit with conditions prescribing the allowable nature of the proposed discharge (California Water Code §§13263, 13377, and 13378).

National Pollution Discharge Elimination System Requirements

Most discharges into state waters are regulated by the National Pollution Discharge Elimination System (NPDES), a regulatory program under the federal Clean Water Act. The NPDES is supervised by USEPA, but administered by the SWRCB. NPDES requirements apply to discharges of pollutants into navigable waters from a point source, discharges of dredged or fill material into navigable waters, and the disposal of sewage sludge that could result in pollutants entering navigable waters. California has received USEPA approval of its NPDES program.

Pursuant to California's NPDES program, any waste discharger subject to the NPDES program must obtain an NPDES permit from the appropriate RWQCB. The permits typically include criteria and water quality objectives for a wide range of constituents. The NPDES program is self-monitoring, requiring periodic effluent sampling. Permit compliance is assessed monthly by the local RWQCB and any NPDES violations are then categorized and reported to USEPA on a quarterly basis.

USEPA has also published regulations that require certain industries, cities and counties to obtain NPDES permits for stormwater discharges [(55 Fed. Reg. (1990)]. The new regulations set forth permit application requirements for classes of stormwater discharges specifically identified in the federal Clean Water Act. The regulated stormwater discharges include those associated with industrial activity and from municipal storm sewer systems serving a population of 100,000 or more.

Discharges to Publicly Owned Treatment Works (POTWs)

Water discharges to a public sewage system (referred to generically as a POTW), rather than directly to the environment, are not subject to the NPDES discharge requirements. Instead, such discharges are subject to federal pretreatment requirements under §§307(b) and (c) of the Clean Water Act [(33 U.S.C., §1317(b)-(c))]. Though these pretreatment standards are enforced directly by USEPA, they are implemented by local sanitation districts (Monahan et al., 1993). The discharger, however, has the responsibility to ensure that the waste stream complies with the pretreatment requirements of the local system. Any facility using air pollution control equipment affecting water quality must receive a permit to operate from the local sanitation district. In cases where facilities modify their equipment or install air pollution controls that generate or alter existing wastewater streams, owner/operators must notify the local sanitation district and request that their existing permit be reviewed and modified.

To ensure compliance with wastewater pretreatment regulations, local sanitation districts, such as the County Sanitation Districts of Los Angeles County, sample and analyze the wastewater streams from facilities approximately two to four times per year (Lum, 1989). Persons who violate the state's water quality laws are subject to a wide array of enforcement provisions.

In 1990, USEPA revised and extended existing regulations to further regulate hazardous waste dischargers and require effluent testing by POTWs. To comply with revised permit limits, POTWs may alter their operations or impose more stringent local limits on industrial user discharges of hazardous wastes (Monahan, et al., 1993). Sanitation districts that adopt ordinances establishing a permit system and fee structure operate POTWs in California. There are 47 agencies providing wastewater treatment in the district, the largest three being the County Sanitation Districts of Los Angeles County, Los Angeles City Sanitation District, and the Orange County Sanitation District. These three agencies account for 71 percent of influent wastewater in the district (SCAG, 1993).

There are a variety of advanced chemical and physical treatment techniques and equipment that remove chemical contaminants from waste streams. Depending upon the characteristics of the contaminants in the wastewater stream, it may be necessary for the wastewater to undergo a series of treatment processes. Table 3-6 identifies some examples of wastewater treatment methodologies and the appropriate sequence in the wastewater treatment process in which they would occur.

TABLE 3-6

Examples of Wastewater Treatment Methods

INITIAL TREATMENT	INTERMEDIATE TREATMENT	ADVANCED TREATMENT
Sedimentation	Trickling Filters	Carbon Adsorption
Neutralization	Activated Sludge	Ion Exchange
Chemical Coagulation	(aerobic bacteria)	Air Stripping
Precipitation	Chemical Oxidation	Reverse Osmosis
	(chlorination & ozonation)	Electrodialysis

Source: Lippmann and Schlesinger, 1979; Vembu, 1994.

Existing Water Sources and Uses

Local water districts are the primary water purveyors. These water districts receive some of their water supply from surface and groundwater resources within their respective jurisdictions, with any shortfall made up from supplemental water purveyors. In some cases, 100 percent of a local water district's water supply may come from supplemental sources. The main sources of surface water used by local water districts within the district are the Colorado, Santa Ana, and Santa Clara Rivers. The primary groundwater sources used by local water districts are as follows:

- Los Angeles County: Raymond, San Fernando, and San Gabriel Water Basins.
- San Bernardino and Riverside counties: Upper Santa Ana Valley Water Basin.
- Riverside County: Coachella Valley Water Basin.
- Orange County: Coastal Plain Water Basin.

The major supplemental water importer in the district is the Southern California Metropolitan Water District (MWD), which *distributes wholesale water obtained from the Colorado River and Northern California through* ~~is made up of~~ 12 member agencies, 14 member cities, and one County Water Authority. *Also, MWD provides more than one-half of the water used by approximately 17 million people in six counties covering the 5,200 square-mile coastal plain* *of Southern California. To provide this service, MWD operates an extensive system of water conveyance, reservoirs, and water treatment plants.*

Water Consumption

Estimating total water use in the district is difficult because the boundaries of supplemental water purveyors' service areas bear little relation to the boundaries of the district and there are dozens of individual water retailers within the district.

Total water demand within the district is estimated by the Metropolitan Water District of Southern California (MWD) to be approximately 1.9 million acre-feet[6] (MAF) in calendar year 2005. The MWD's service area includes southern Los Angeles county, including the San Gabriel and San Fernando Valleys, all of Orange County, the western portion of Riverside County, and the Chino Basin in southwestern San Bernardino County. The MWD estimates a supply of 3.0 MAF by year 2005, providing a potential reserve capacity of 1.1 MAF. Local water districts within the MWD service area drew the remaining water from local water sources. About 89 percent of water consumed in the MWD region goes to urban uses with the rest going to agriculture (Rodrigo, 1996). Sixty-six percent of urban water use occurs in the residential sector, with another 17 percent in the commercial and six percent in the industrial sectors. Remaining water uses include public entities, fire fighting, industrial and manufacturing processes. Smaller water purveyors supplied water to northern and eastern areas of the district. Table 3-7 shows water supply, water demand and the potential reserve capacity in MWD jurisdiction.

TABLE 3-7

Metropolitan Water District Water Supply and Potential Reserve Capacity

	YEAR (acre–feet per year)			
	2005	**2010**	**2015**	**2020**
Expected Maximum Supply	3,050,800	3,076,800	3,152,100	2,996,600
Total Demands	1,901,400	1,953,800	2,076,500	2,390,000
Potential Reserve Capacity	1,149,400	1,114,000	1,075,600	606,600

Source: "Report on Metropolitan's Water Supplies" (February 11, 2002)

Most of the outlying regions of the district are heavily dependent on local surface and groundwater resources as major sources of supply for both domestic and agricultural uses. Supplemental supplies are also available in some areas through California State Water

[6]One acre foot (AF) is equivalent to 325,800 gallons.

Project (SWP) contractors. The largest water supply source in this sub-region is the Colorado River.

Past population growth and agricultural development in the outlying regions have resulted in groundwater pumping beyond safe yield levels. The Antelope Valley Basin (north Los Angeles County), Mojave Basin (San Bernardino County), and the Coachella Valley Basin (Riverside County) are all in overdraft condition.

Local Water Supplies

Local surface water sources and groundwater basins provide about one-third of the water supply in the district (calculated from data in SCAG, 1993d). The largest surface water sources in the region are the Colorado, the Santa Ana, and the Santa Clara River systems. Major groundwater basins in the region include the Central, Raymond, San Fernando, and San Gabriel basins (Los Angeles county); the Upper Santa Ana Valley Basin system (San Bernardino and Riverside counties); the Coastal Plain Basin (Orange county); and the Coachella Valley Basin (Riverside county).

Local water resources are fully developed and are expected to remain relatively stable in the future on a region-wide basis. However, local water supplies may decline in certain localized areas and increase in others. Several groundwater basins in the region are threatened by overdraft conditions, increasing levels of salinity, and contamination by toxics or other pollutants. Local supplies may also be reduced by conversion of agricultural land to urban development, thereby reducing the land surface available for groundwater recharge. Increasing demand for groundwater may also be limited by water quality, since levels of salinity in sources currently used for irrigation could be unacceptably high for domestic use without treatment.

Imported Water Supplies

Several major conveyance systems bring water to the urbanized portion of the region from: northern California via the SWP; the Sierra Nevada via the Los Angeles Aqueduct; and the Colorado River via the Colorado River Aqueduct. The All-American/Coachella Canals deliver agricultural irrigation water from the Colorado River to the Coachella Valley. The continued availability of water from these sources is uncertain at current levels. The yield of the SWP system is expected to decrease in the future as water use in areas of origin increases, Central Valley Project (CVP) contractual obligations increase, and users with prior rights to northern California water supplies begin to exercise those rights (SCAG, 1987). The following subsections detail some of the major sources of water supplied to the area within the jurisdiction of the SCAQMD.

State Water Project

The SWP supplied 0.57 MAF to the MWD in 1995 (Muir, 1996). Contractors in the MWD service area hold contracts for 1.86 MAF. California's total apportionment of SWP water is 4.23 MAF per year, with a dependable supply of about 2.1 MAF. If additional water supplies are not secured, SWP contractors in the region will face increasing risks of water supply deficiencies during dry years. Efforts to increase dependable yields through the SWP have included a Coordinated Operation Agreement between the State and the U.S. Bureau of Reclamation, completion of additional pumping capacity in the San Francisco Bay Delta, and development of additional off-stream storage facilities. If these efforts are successful, annual net use of SWP may increase by 0.8 MAF by 2010.

Los Angeles Aqueduct

The Los Angeles Aqueduct provided about 0.17 MAF of water in 1992 (RWQCB, 1993). Court decisions (September, 1994) have required that minimum stream flows be established in four of the streams feeding Mono Lake so that fish and water fowl habitats can be restored and protected (Frink, 1996). In addition, California courts have ruled that the average lake surface elevation of Mono Lake be restored to 6,392 feet above mean sea level. To comply with these rulings, the City of Los Angeles anticipates it will have to ultimately reduce diversion of Mono Lake water by as much as 60,000 AF per year.

Colorado River Aqueduct

Currently, California's basic apportionment of Colorado River water is 4.4 MAF. However, due to above-normal runoff in the Colorado River Basin, and the states of Arizona and Nevada not taking their full apportionment, California has received an average of 4.8 MAF per year in recent years (SCAG, 1993).

With the Central Arizona Project operational, and therefore diverting Colorado River water, the supply of Colorado River water available to MWD can be reduced from 1.212 MAF to 0.62 MAF per year, even with completion of a cooperative water conservation program with the Imperial Irrigation District. MWD staff has conservatively projected future supply at 0.62 MAF per year from existing programs and facilities and is considering programs to increase its dependable Colorado River supplies (Schempp, 1996).

Subregional Water Quality

The following subsections consider the quality of surface and groundwater sources that lie within the coastal sub-region and the outlying sub-region. Water quality of the major water basins in each sub-region is discussed for both surface and groundwater sources.

Coastal Sub-region Water Quality

The Los Angeles River Basin area is located in southern Los Angeles County and is drained by the Los Angeles River, San Gabriel River, and Malibu Creek (RWQCB, 1993).

- Surface water quality of the Los Angeles River system has minor problems that are attributable to high pH, nitrate/nitrite, chlorine levels, and low dissolved oxygen. The Los Angeles River drainage basin includes large recreation and wildlife habitat areas in the San Fernando Valley. Urban runoff and illegal dumping are the major sources of water quality problems in this river system.

- Minor water quality problems caused by urban runoff and point source discharges have occurred in urbanized portions of the San Gabriel River drainage system, but water quality is good in the source areas of the San Gabriel Mountains.

- Malibu Creek and its tributaries are an intermittent stream system that drains a portion of the western Santa Monica Mountains. This drainage area has high total dissolved solids (TDS) levels and, in general, water quality has declined as a result of wastewater discharge into the creek. Non-point source pollutants of concern include excess nutrients, sediment and bacteria.

Groundwater sources of the Los Angeles River Basin include the Los Angeles Coastal Plain, San Fernando Valley, and San Gabriel Valley Basins (RWQCB, 1993).

- Water quality in the Los Angeles Coastal Plain Basin is generally good, although saltwater intrusion has been a problem along the coast. The Los Angeles County Flood Control District through the Dominguez Gap Barrier project is currently addressing this problem. The purpose of the project is to create a fresh water pressure ridge to prevent further landward movement of seawater.

- Hydrocarbons from industry, and nitrates from subsurface sewage disposal and past agricultural activities are the primary pollutants in much of the groundwater throughout the San Gabriel and San Fernando Valley Groundwater Basins. Pollution has shut down at least 20 percent of municipal groundwater production capacity in both basins. The California Department of Toxic Substances Control has designated large areas of these basins as high priority Hazardous Substances Cleanup sites. The USEPA has designated both areas as Superfund sites. Both the RWQCB and USEPA are overseeing investigations to further define the extent of pollution, identify the responsible parties and begin remediation.

Santa Ana River Basin

The Santa Ana River Basin area is located in Orange County and the western (non-desert) portion of San Bernardino and Riverside counties. Improper operation of individual sewage storage or treatment systems in the upper Santa Ana River area has degraded surface water quality. High Total Dissolved Solids (TDS) and nutrient levels have affected lower portions of the river due to low quality rising groundwater, urban runoff, and nonpoint agricultural pollution. Lakes in the area receive water from the State Water Project and Colorado River and have fair to good water quality.

Primary groundwater basins in the Santa Ana River Basin include Orange County Coastal Plain, Upper Santa Ana River Valley, San Jacinto, Elsinore, and San Juan Creek. Groundwater quality is generally good in this area. Some deterioration has occurred due to recharge by Colorado River water, percolation of irrigation wastewater, overdraft, seawater intrusion, and mineralization. Water quality has been compromised further by municipal, industrial, and agricultural waste disposal. Saltwater intrusion problems have been somewhat alleviated by injection of water into wells of the Talbert Gap Barrier Project and increased use of Colorado River water by southern Orange County.

Outlying Sub-region Water Quality

Santa Clara River Basin

The Santa Clara River Basin area is located in Ventura County and northern Los Angeles County and is drained by the Santa Clara River, which empties into the Pacific Ocean near the City of Oxnard. Surface water sources are provided mainly by reservoirs in the area, which are in turn supplied by water from the SWP and the Los Angeles Aqueduct. These water sources provide water that is generally of high quality. Tributary creeks typically possess good water quality except during low flows. Water quality in the Santa Clara River is relatively poor and further degrades downstream when groundwaters rise, resulting in high TDS levels, irrigation return flows, and other contaminants. Threats to water quality include increasing urban development in floodplain areas, which requires flood control measures. These measures result in increased flows and erosion and loss of habitat (RWQCB, 1993).

Nine groundwater basins are located in the Santa Clara River Basin. Groundwater quality is generally good in the upper Santa Clara River Basin (Los Angeles County) but worsens near the Los Angeles County-Ventura County line. High TDS concentrations are common in the Santa Clara River Valley area.

Desert Basins

The desert sub-region includes most of San Bernardino County, eastern Riverside County, and Imperial County. Few water quality problems exist in this area with the exception of the Salton Sea vicinity, which has high and increasing salinity as a result of irrigation return flows, increasing salinity of Colorado River water, and inadequately treated municipal discharges (particularly from sources in Mexico) (Coachella Valley Water District, 1993).

Groundwater quality problems in the South Lahontan Basin, located in desert sub-region portions of Los Angeles and San Bernardino counties, include overdraft and pollution from mining and sewage wastes. West Colorado River Basin has increasingly high salinity near the Colorado River. Local groundwater supplies along the Colorado River are also poor where they are affected by saline river water, failing septic tanks and leachfield systems, and irrigation return flows.

PUBLIC SERVICES

Public services offered and available within the Basin are extensive and numerous although statistical data specific to the Basin are not available. Information concerning public services was obtained from references that outlined data by county or by the Southern California Association of Governments (SCAG) Region. The SCAG region comprises Ventura and Imperial counties, and the desert portions of Los Angeles, San Bernardino and Riverside counties in addition to the four-county area comprising the Basin. Statistical information will therefore be provided for the four-county area or by SCAG region. The following public service areas are discussed in this section.

- Schools;
- Law Enforcement; and
- Fire Protection;

Schools

In 1994, there were more than 2,700 schools in Los Angeles, Orange, Riverside, and San Bernardino counties serving over 3.6 million students (SCAQMD, 1994). Schools include private and public schools from kindergarten through junior colleges, vocational education and continuing education programs, and major universities. For the 1992 to 1993 school year, Los Angeles County had the largest number of schools, (kindergarten through twelfth grade schools), with a student population of approximately 1,667,014, Orange County with 442,510, Riverside County with 261,886 and San Bernardino County with 334,741. Nearly 44 percent of the public school districts in the Basin are within Los Angeles County including the Los Angeles Unified School District (LAUSD) and the Long Beach Unified School District (LBUSD). Combined with Santa Ana Unified School District (SAUSD) in Orange County, these three school districts represent almost 30 percent of the Basin's public school enrollment (SCAG, 1993).

The greatest growth in both public and private secondary and elementary school enrollments has been in San Bernardino and Riverside counties. Riverside County alone has experienced an 80 percent increase in its public school enrollment, while San Bernardino County's public school enrollment population grew by 64 percent, between 1981 and 1991 (SCAG, 1993). It is anticipated these growth trends will continue into the future.

The capacity of school facilities to accommodate the student population is directly affected by increases in school enrollment. The greatest percent of new school construction is in Riverside (45 percent) and San Bernardino (38 percent) counties. The greatest percentage of reconstruction/remodeling 87 percent, however, is in Los Angeles County. This high percentage of facility expansion projects is a strong indication of the current school congestion problem in Los Angeles County. Further evidence of the current overcrowding is the fact that, both LAUSD and LBUSD have had to institute busing programs (SCAG, 1993).

Post secondary schools include public and private colleges and universities, and adult schools. Nearly 43 percent of the state's 1991 community college enrollment was concentrated in the four-county region (SCAG, 1993). The four-county region contains dozens of institutions of higher learning (post 12th grade), including 13 community colleges, seven California State Universities (CSU), three University of California (UC) campuses, and many private colleges such as the University of Southern California (USC), Pepperdine University, and Loyola-Maymount University.

Law Enforcement

As of 1990, there were approximately 55,471 law enforcement officers employed within the SCAG Region, yielding a ratio of one police officer and/or sheriff per 263 civilians (SCAG, 1993). Most cities in the district maintain their own police departments, although some cities may contract with county sheriffs departments or nearby larger cities for police services. Unincorporated areas receive police protection from county sheriff departments. The California Highway Patrol (CHP) provides law enforcement services on state and interstate highways. The CHP also provides back-up services, along with county sheriff departments, on federal lands such as national forests and Bureau of Land Management land. State rangers protect state park and recreation areas.

Many of the police and sheriff departments have begun programs to improve efficiencies in delivering protection services and increase involvement in policing. These programs have included drug and crime prevention programs and education, job training and community activities for youth and adults. Police departments have also begun to place a greater reliance upon communities to provide needed support services, such as neighborhood watch programs. Some law enforcement agencies have established a goal of increasing their efficiency in delivering protection services and utilization of existing facilities through consolidation of services, better use of underutilized facilities, and redefinition of service district boundaries and use of new technologies.

In an effort to increase law enforcement officers available to provide protection services, some law enforcement agencies are replacing officers in administrative functions with civilian personnel. In addition, Congress has passed the new crime bill which is expected to provide among other things, additional funding for more law enforcement officers.

Fire Protection

Fire protection consists of fire fighting, paramedical care, fire detection and building and fire code inspection. In addition, they are usually the first agency to respond to an emergency release of hazardous materials. City and county fire departments generally provide these services with some cities contracting with the county for services. The U.S. Forest Service provides fire protection on all national forest lands while the California Department of Forestry has jurisdiction over wildland fire protection in various unincorporated areas of Riverside and San Bernardino counties. The Los Angeles County Department of Forestry serves the northeastern area of Los Angeles County. Approximately 17,924 personnel (one employee per 765 civilians) were employed in fire protection within the four county area, as of June 1993 (SCAG, 1993).

Average response times vary from 4.35 to 15 minutes for emergency medical service and from 2.52 to 15 minutes for structure incidence fires (SCAG, 1993). Times vary according to a variety of factors, such as size of area covered, distance from station, time of day, and road congestion. Within the district, response times are often longer in rural areas than in suburban and urban areas.

TRANSPORTATION / CIRCULATION

Many agencies share authority for transportation planning and operations in the district. These agencies include SCAG, the county transportation authorities, local government transportation departments, and Caltrans, as well as the SCAQMD. For the purposes of the AQMP, however, the SCAQMD and SCAG share the responsibility for developing transportation measures to achieve air quality objectives.

SCAG, as the federally designated Metropolitan Planning Organization (MPO) for a major portion of Southern California, SCAG is required to adopt and periodically update a long-range transportation plan for the area of its jurisdiction [(Title 23 United States Code §134(g)(1)]. SCAG also is required, under §65080 of the Government Code, to prepare a regional transportation plan (RTP) for the area. These subsections also specify that actions by transportation agencies must be consistent with an adopted RTP that conforms with air quality requirements in order to obtain federal and state funding.

By law, the Regional Transportation Plan must meet federal and state air quality (conformity) requirements. Failure to comply with conformity requirements will result in a loss of transportation funding from these sources. Currently there are seven federally designated non-attainment areas in the SCAG region--South Coast Air Basin, Ventura County, San Bernardino County, Searles Valley, Coachella Valley, North Los Angeles County (Antelope Valley) and Imperial County. In the South Coast Air Basin, the RTP is required to reduce VOC emissions by approximately 15 tons per day and NOx emissions by approximately 16 tons a day.

The transportation system utilized in the district is a multi-faceted and multi-modal system for moving people and goods. It includes an extensive network of freeways, highways and roads; public transit; air and sea routes; and non-motorized modes of travel (walking and biking). The routes of travel to move people and goods are briefly summarized below. Please consult SCAG's 1998 Regional Transportation Plan for further detail.

Freeways, Highways and Arterials

There are almost 8,000 miles of freeway and high-occupancy vehicle (HOV) lanes linking the region. Additionally, there are 27,500 lane miles of arterials and highways. These roadways are an integral part of the transportation system, often acting as alternative routes to freeway driving.

On an annual basis, transit ridership peaked in the mid-eighties at somewhat less than 600 million passenger trips annually and since then slowly has declined to slightly less than 500 million passenger trips per year. Despite this downward trend, ridership has increased on the recently introduced rail services and for several smaller bus operators. However, in the critical home-to-work trips category, according to census data, transit's share declined almost 12 percent between 1980 and 1990. By comparison, drive-alone, home-to-work trips increased from 70.2 to 72.4 percent for an increase of 3.1 percent.

Transit service is provided by approximately 17 separate public agencies, with nine of these providing 98 percent of the existing public bus transit service. Local service is supplemented by municipal lines and shuttle services and private bus companies provide additional regional service.

Rail

The Southern California Regional Rail Authority operates commuter rail systems. Additionally, Amtrak provides inter-city service, principally between San Diego and San Luis Obispo.

The SCAG region is served by two main line freight railroads--the Burlington Northern Santa Fe (BNSF) and the Union Pacific Railroad (UP). These freight railroads connect Southern California with other U.S. regions, Mexico and Canada via their connections with other railroads. They also provide freight rail service within Southern California. In 1995, these railroads moved more than 91 million tons of cargo in and out of Southern California.

The SCAG region is also served by three short line or switching railroads: Harbor Belt Railroad, owned by BNSF and UP; Los Angeles Junction Railway Company, owned by BNSF; and Ventura County Railway, owned by Greenbrier. These freight railroads perform specific local functions, and serve as feeder lines to the trunk line railroads for moving goods to and from Southern California.

The two main line freight railroads maintain major facilities in the SCAG region: Intermodal facilities in Commerce (BNSF), San Bernardino (BNSF), City of Industry (UP), Los Angeles (UP) and Long Beach (UP). Major classification yards include Barstow (BNSF), East Los Angeles (UP) and West Colton (UP), and Rail-truck transload and warehousing facilities in Bakersfield, Glendale, Fontana, Pomona, Los Angeles, Long Beach, Wilmington and Commerce.

Maritime

Three major seaports serve southern California. These ports--Hueneme, Long Beach and Los Angeles--serve over 80 ocean carriers, the two major railroads and almost every trucking company in southern California. Port of Hueneme with its recent port expansion ranks as one of the premier automobile and agricultural product handling facilities in California. The ports of Long Beach and Los Angeles are full-service ports with facilities for containers, autos and various bulk cargoes. With an extensive landside transportation network, the three ports moved more than 120 million tons of cargo in 1995. In particular, the San Pedro Bay Ports (Long Beach and Los Angeles) dominate the container trade in the Americas by shipping and receiving more than 5 million containers. Together, these two ports rank third, behind Rotterdam and Hong Kong, in world sea trade.

SOLID / HAZARDOUS WASTE

Solid Waste

California Code of Regulations (CCR) Title 14, Division 7 provides the state standards for the management of facilities that handle and/or dispose of solid waste. CCR Title 14, Division 7 is administered by the California Integrated Waste Management Board (CIWMB) and the designated Local Enforcement Agency (LEA). The designated LEA for each county is the County Department of Environmental Health. CCR Title 14, Division 7 establishes general standards to provide required levels of performance for facilities that handle and/or dispose of solid waste. Other requirements included in CCR Title 14, include operational plans, closure plans, and post-closure monitoring and maintenance plans. This regulation covers various solid waste facilities including, but not limited to: landfills, materials recovery facilities (MRFs) and transfer stations and composting facilities.

The district's four-county region is permitted to accept over 111,198 tons of municipal solid waste (MSW) each day. Solid wastes consist of residential wastes (trash and garbage produced by households), construction wastes, commercial and industrial wastes, home appliances and abandoned vehicles, and sludge residues (waste remaining at the end of the sewage treatment process).

A total of 39 Class III active landfills and two transformation facilities are located within the district with a total capacity of 111,198 tons per day. Los Angeles County has 14 active landfills with a permitted capacity of over 58,000 tons per day. San Bernardino County has nine public and private landfills within the district's boundaries with a combined permitted capacity of 11,783 tons per day. Riverside County has 12 active sanitary landfills with a total capacity of 14,707 tons per day. Each of these landfills is located within the unincorporated area of the county and is classified as Class III. Orange County currently has four active Class III landfills with a permitted capacity of over 25,000 tons per day.

Hazardous Waste

Hazardous materials as defined in 40 CFR 261.20 and California Title 22 Article 9 (including listed substances, 40 CFR 261.30) are disposed of in Class I landfills. California has enacted strict legislation for regulating Class I landfills (California Health and Safety Code, §§ 25209 - 25209.7). For example, the treatment zone of a Class I landfill must not extend more than five feet below the initial surface and the base of the zone must be a minimum of five feet above the highest anticipated elevation of underlying groundwater [H&S Code, §25209.1(h)]. The Health and Safety Codes also require Class I landfills to be equipped with liners, a leachate collection and removal system, and a groundwater monitoring system (H&S Code, §25209.2(a). Such systems must meet the requirements of the California Department of Toxic Substances Control (DTSC) and the California Water Resources Control Board (H&S Code, §25209.5).

Currently, the area within the district does not have any approved Class I landfills that accept hazardous wastes. There are currently two Class I landfills located in California. Chemical Waste Management Corporation in Kettleman City is a treatment, storage and disposal facility that has a capacity of 13 million cubic yards. At current disposal rates, this capacity would last for approximately 26 years (Turek, 1996). Laidlaw Environmental has a Class I facility in Buttonwillow with a permitted capacity of 13 million cubic yards. The current capacity is 800 thousand cubic yards. At current disposal rates, this capacity would last for approximately three years. In addition, treatment services and landfill disposal are available from the Laidlaw facility located in Westmoreland (Buoni, 1996).

In addition, hazardous waste can also be transported to permitted facilities outside of California. The nearest out-of-state landfills are U.S. Ecology, Inc., located in Beatty, Nevada; USPCI, Inc., in Murray, Utah; and Envirosafe Services of Idaho, Inc.; in Mountain Home, Idaho. Incineration is provided at the following out-of-state facilities: Aptus, located in Aragonite, Utah and Coffeyville, Kansas; Rollins Environmental Services, Inc., located in Deer Park, Texas and Baton Rouge, Louisiana; Chemical Waste Management, Inc., in Port Arthur, Texas; and Waste Research & Reclamation Co., Eau Claire, Wisconsin (Kirby, 1996).

HAZARDS

Hazardous Materials Management Planning

State law requires detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of to prevent or mitigate injury to health or the environment in the event that such materials are accidentally released. The California Office of Emergency Services (OES) enforces these requirements. Federal laws, such as the Emergency Planning and Community-Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act or SARA) impose similar requirements.

Hazardous Materials Transportation

The U.S. Department of Transportation (U.S.DOT) has the regulatory responsibility for the safe transport of hazardous materials between states and to foreign countries. U.S.DOT regulations govern all means of transportation, except for those packages shipped by mail. Hazardous materials sent by U.S. mail are covered by the U.S. Postal Service (USPS) regulations. U.S.DOT regulations are contained in the Code of Federal Regulations, Title 49 (49 CFR); USPS regulations are in 39 CFR.

Common carriers are licensed by the California Highway Patrol (CHP), pursuant to the California Vehicle Code, §32000. This section requires licensing of every motor (common) carrier who transports, for a fee, in excess of 500 pounds of hazardous materials at one time and every carrier, if not for hire, who carries more than 1,000 pounds of hazardous material of the type requiring placards. Common carriers conduct a large portion of their business in the delivery of hazardous materials.

Under the Resource Conservation and Recovery Act (RCRA) of 1976, the U.S.EPA sets standards for transporters of hazardous waste. In addition, the State of California regulates the transport of hazardous waste originating or passing through the state. State regulations are contained in CCR, Title 13. Hazardous waste must be regularly removed from generating sites by licensed hazardous waste transporters. Transported materials must be accompanied by hazardous waste manifests.

Two state agencies have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies: the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans).

The CHP enforces hazardous materials and hazardous waste labeling and packing regulations that prevent leakage and spills of material in transit and provide detailed information to cleanup crews in the event of an accident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of the CHP. The CHP conducts regular inspections of licensed transporters to assure regulatory compliance. Caltrans has emergency chemical spill identification teams at 72 locations throughout the state.

Hazardous Material Worker Safety Requirements

The California Occupational Safety and Health Administration (Cal/OSHA) and the Federal Occupational Safety and Health Administration (OSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. In California, Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations.

Under the authority of the Occupational Safety and Health Act of 1970, OSHA has adopted numerous regulations pertaining to worker safety (contained in 29 CFR - Labor). These regulations set standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries. Some OSHA regulations contain standards relating to hazardous materials handling, including workplace conditions, employee protection requirements, first aid, and fire protection, as well as material handling and storage. Because California has a federally-approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in 29 CFR.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace (which are detailed in CCR, Title 8) include requirements for employee safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances. The hazard communication program also requires that Material Safety Data Sheets (MSDS) be available to employees and that employee information and training programs be documented. These regulations also require preparation of emergency action plans (escape and evacuation procedures, rescue and medical duties, alarm systems, and emergency evacuation training).

Both federal and state laws include special provisions for hazard communication to employees in research laboratories, including training in chemical work practices. The training must include instruction in methods for the safe handling of hazardous materials, an explanation of MSDS, use of emergency response equipment and supplies, and an explanation of the building emergency response plan and procedures.

Chemical safety information must also be available at the workplace. More detailed training and monitoring is required for the use of carcinogens, ethylene oxide, lead, asbestos, and certain other chemicals listed in 29 CFR. Emergency equipment and supplies, such as fire extinguishers, safety showers, and eye washes, must also be kept in accessible places. Compliance with these regulations reduces the risk of accidents, worker health effects, and emissions.

The National Fire Code (NFC), Standard 45 (published by the National Fire Protection Association) contains standards for laboratories using chemicals, which are not requirements, but are generally employed by organizations in order to protect workers. These standards provide basic protection of life and property in laboratory work areas through prevention and control of fires and explosions, and also serve to protect personnel from exposure to non-fire health hazards.

While NFC Standard 45 is regarded as a nationally recognized standard, the California Fire Code (24 CCR) contains state standards for the use and storage of hazardous materials and special standards for buildings where hazardous materials are found. Some of these regulations consist of amendments to NFC Standard 45. State Fire Code regulations require emergency pre-fire plans to include training programs in first aid, the use of fire equipment, and methods of evacuation.

Hazardous Waste Handling Requirements

Under RCRA, a major new federal hazardous waste regulatory program was created that is administered by the U.S. EPA. Pursuant to RCRA, U.S. EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste.

RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the concept of regulating hazardous wastes from generation through disposal. HSWA specifically prohibits the use of certain techniques for the disposal of some types of hazardous wastes.

Under RCRA, individual states may implement their own hazardous waste programs in lieu of RCRA as long as the state program is at least as stringent as the federal RCRA requirements. U.S. EPA approved California's program to implement federal regulations as of August 1, 1992.

The California Environmental Protection Agency Department of Toxic Substance Control (DTSC) administers the Hazardous Waste Control Law (HWCL). Under HWCL, DTSC has adopted extensive regulations governing the generation, transportation, and disposal of hazardous wastes. HWCL differs little from RCRA; both laws impose "cradle to grave" regulatory systems for handling hazardous wastes in a manner that protects human health and the environment. Regulations implementing HWCL are generally more stringent than regulations implementing RCRA.

Regulations implementing HWCL list over 780 hazardous chemicals as well as nearly 30 more common materials that may be hazardous. HWCL regulations establish criteria for identifying, packaging and labeling hazardous wastes. They prescribe management practices for hazardous wastes; establish permit requirements for hazardous waste treatment, storage, disposal and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

Under both RCRA and HWCL, hazardous waste manifests must be retained by the generator for a minimum of three years. Hazardous waste manifests list a description of the waste, its intended destination and regulatory information about the waste. A copy of each manifest must be filed with DTSC. The generator must match copies of hazardous waste manifests with certification notices from the treatment, disposal, or recycling facility.

Emergency Response to Hazardous Materials and Wastes Incidents

Pursuant to the Emergency Services Act, California has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government agencies and private persons. Response to hazardous materials incidents is one part of this plan. The Plan is administered by OES, which coordinates the responses of other agencies including U.S. EPA, CHP, Department of Fish and Game, the applicable RWQCB, and local fire departments (see California Government Code, §8550).

In addition, pursuant to the Hazardous Materials Release Response Plans and Inventory Law of 1985 (the Business Plan Law), local agencies are required to develop "area plans" for response to releases of hazardous materials and wastes. These emergency response plans depend to a large extent on the business plans submitted by persons who handle hazardous materials. An area plan must include pre-emergency planning of procedures for emergency response, notification and coordination of affected government agencies and responsible parties, training, and follow-up.

Hazardous Materials Incidents

Hazard concerns are related to the risks of fire, explosions, or releases of hazardous substances in the event of accident or upset conditions. Hazard is thus related to the production, use, storage, and transport of hazardous materials. Industrial production and processing facilities are potential sites for hazardous materials. Some facilities produce hazardous materials as their end product, while others use such materials as an input to their production processes. Examples of hazardous materials used on a consumable basis include fuels, paints, paint thinner, nail polish, and solvents. Hazardous materials may be stored at facilities producing such materials and at facilities where hazardous materials are part of the production processes. Storage refers to the bulk handling of hazardous materials before and after they are transported to the general geographical area of use. Currently, hazardous materials are transported throughout the district in great quantities via all modes of transportation including rail, highway, water, air and pipeline.

Hazardous materials incidents are reported to the Governor's Office of Emergency Services (OES), which compiles and archives the information. The data on accidental hazardous materials releases presented below are based on a database search of the OES Warning Center's Hazardous Material Spills Reports conducted by OES staff. Even though the record search disclosed these spills, it should be noted that there could have been other spills not reported to OES.

From January 1, 2002 to July 28, 2002, the counties of Orange, Riverside, San Bernardino and Los Angeles reported a total of 1,346 hazardous material releases, while the statewide total was 3,980 (Table 3-8). The breakdown is as follows: 711 releases in Los Angeles County, 197 releases in Orange County, 234 releases in Riverside County, and 204 in San Bernardino County. Tables 3-9 through 3-12 provide information regarding releases of materials that could be used to formulate conventional and future compliant coatings. Table 3-13 provides information specifically regarding releases of paints and coatings.

TABLE 3-8

REPORTED HAZARDOUS MATERIALS INCIDENTS – 2002 (1/1-7/28)
ALL MATERIALS

Location	Reported Incidents	% of Reported Four-County Incidents
Los Angeles	711	53
Orange	197	15
Riverside	234	17
San Bernardino	204	15
Total	**1,346**	**100**
California Total	3,980	

Source: Office of Emergency Services

TABLE 3-9

2002 (1/1-7/28) HAZARDOUS MATERIALS RELEASE INFORMATION:
LOS ANGELES COUNTY

Conventional Solvent	Number of Releases	Amount Released (gallons)
Toluene	2	0.5
Xylene	1	0.5
Mineral Spirits	NR[a]	--
MEK[b]	1	0.5
Replacement Solvent		
Acetone	2	45
Texanol	NR	--
PCBTF[c]	NR	--
EGBE[d]	NR	--

Source: Office of Emergency Services
[a] NR = none reported

[b] MEK = methyl ethyl ketone
[c] PCBTF = parachlorobenzotriflouride
[d] EGBE = ethylene glycol butyl ether

TABLE 3-10

2002 (1/1-7/28) HAZARDOUS MATERIALS RELEASE INFORMATION: ORANGE COUNTY

Compound	Number of Releases	Amount Released
Toluene	NR[a]	--
Xylene	NR	--
Mineral Spirits	NR	--
MEK[b]	NR	--
Replacement Solvent		
Acetone	NR	--
Texanol	NR	--
PCBTF[c]	NR	--
EGBE[d]	NR	--

Source: Office of Emergency Services

[a] NR = none reported
[b] MEK = methyl ethyl ketone
[c] PCBTF = parachlorobenzotriflouride
[d] EGBE = ethylene glycol butyl ether

TABLE 3-11

2002 (1/1-7/28) HAZARDOUS MATERIALS RELEASE INFORMATION: RIVERSIDE COUNTY

Conventional Solvent	Number of Releases	Amount Released (gallons)
Toluene	NR [a]	--
Xylene	NR	--
Mineral Spirits	NR	--
MEK[b]	NR	--
Replacement Solvent		
Acetone	NR	--
Texanol	NR	--
PCBTF[c]	NR	--
EGBE[d]	NR	--

Source: Office of Emergency Services

[a] NR = none reported

[b] MEK = methyl ethyl ketone
[c] PCBTF = parachlorobenzotriflouride
[d] EGBE = ethylene glycol butyl ether

TABLE 3-12

2002 (1/1-7/28) HAZARDOUS MATERIALS RELEASE INFORMATION: SAN BERNARDINO COUNTY

Conventional Solvent	Number of Releases	Amount Released (gallons)
Toluene	NR[a]	--
Xylene	NR	--
Mineral Spirits	NR	--
MEK[b]	NR	--
Replacement Solvent		
Acetone	NR	--
Texanol	NR	--
PCBTF[c]	NR	--
EGBE[d]	NR	--

Source: Office of Emergency Services

[a] NR = none reported
[b] MEK = methyl ethyl ketone
[c] PCBTF = parachlorobenzotriflouride
[d] EGBE = ethylene glycol butyl ether

TABLE 3-13

REPORTED PAINT/COATING INCIDENTS – 2002 (1/1-7/28)

Location	Reported Incidents	Amount (gallons)
Los Angeles	3	35
Orange	1	20
Riverside	4	41
San Bernardino	3	157
Total	**11**	**253**

Source: Office of Emergency Services

Human Health

This section briefly describes the existing setting for human health as it is affected by emissions from existing coating formulations. The actual effects of exposure to coatings, however, depend on such factors as the exposure duration, potency of the solvents of concern, exposure frequency, and other factors. As noted in Table 3-14, AIM coatings are currently formulated with toxic substances with a range of adverse human health effects.

TABLE 3-14

TOXICITY OF CURRENTLY AVAILABLE COATING SOLVENTS

Traditional/Conventional Solvents				
Solvents	**TLV (ACGIH) (ppm)**	**PEL (OSHA) (ppm)**	**IDLH (ppm)**	**Health Hazard**
Toluene	100	200	2,000	Moderate irritation - eye, nose, throat; narcosis: skin; suspect teratogen; mutagen
Xylene	100	100	1,000	Mild irritation - eye, nose, throat; narcosis; skin
MEK	200	200	3,000	Mild irritation - eye, nose, throat; narcosis
Isopropanol	400	400	12,000	Mild irritation - eye, nose, throat; narcosis
Butyl Acetate	150	150	10,000	Moderate irritation - eye, nose, throat; narcosis
Isobutyl Alcohol	50	100	8,000	Mild irritation - eye, nose, throat; suspect carcinogen
Stoddard Solvent	100	500	5,000	Narcosis; mild irritant
Petroleum Distillates (Naptha)	100	400	10,000	Mild irritation; narcosis
EGBE	25	50	700	Mild irritation - eye, nose, throat; anemia; skin
EGME	5	25	Not Available	Cumulative CNS; skin; suspect reproductive effects; blood disorders
EGEE	5	200	Not Available	Cumulative blood damage; moderate irritation of eyes, throat, skin

[a] Source: American Conference of Government Industrial Hygienists

[b] Source: OSHA

[c] IDLH = immediately dangerous to life and health

CHAPTER 4

ENVIRONMENTAL IMPACTS AND MITIGATION

Introduction

Air Quality

Water Resources

Public Services

Transportation / Circulation

Solid / Hazardous Waste

Hazards

Human Health

Environmental Impacts Found Not To Be Significant

Other CEQA Topics

INTRODUCTION

CEQA requires environmental documents to identify significant environmental effects that may result from a proposed project [CEQA Guidelines §15126.2 (a)]. Direct and indirect significant effects of a project on the environment should be identified and described, with consideration given to both short- and long-term impacts. The discussion of environmental impacts may include, but is not limited, to, the resources involved; physical changes; alterations of ecological systems; health and safety problems caused by physical changes; and other aspects of the resource base, including water, scenic quality, and public services. If significant adverse environmental impacts are identified, the CEQA Guidelines require a discussion of measures that could either avoid or substantially reduce any adverse environmental impacts to the greatest extent feasible (CEQA Guidelines §15126.4(c)].

The CEQA Guidelines state that the degree of specificity required in a CEQA document depends on the type of project being proposed (CEQA Guidelines §15146). The detail of the environmental analysis for certain types of projects cannot be as great as for others. For example, the environmental document for projects, such as the adoption or amendment of a comprehensive zoning ordinance or a local general plan, should focus on the secondary effects that can be expected to follow from the adoption or amendment, but the analysis need not be as detailed as the analysis of the specific construction projects that might follow. As a result, this Draft SEA analyzes impacts on a regional level and impacts on the level of individual industries or individual facilities where feasible.

The categories of environmental impacts recommended for evaluation in a CEQA document are established by CEQA (Public Resources Code, §21000 et seq.) and the CEQA Guidelines as promulgated by the State of California Secretary of Resources. Under the CEQA Guidelines, there are approximately 15 environmental categories in which potential adverse impacts from a project are evaluated. Projects are evaluated against the environmental categories in an environmental checklist and those environmental categories that may be adversely affected by the project are further analyzed in the appropriate CEQA document.

Pursuant to CEQA, a Notice of Preparation and an Initial Study (NOP/IS), including an environmental checklist, were prepared for the 1999 amendments to Rule 1113 (see Appendix B). Of the 15 potential environmental impact categories, it was determined that a Draft SEA should be prepared to address potential adverse effects on air quality, water resources, and public services. As a result of comments received on the NOP/IS at that time, it was further determined that potential transportation/circulation, solid/hazardous waste, hazards, and human health impacts were also analyzed in the Draft SEA for the 1999 amendments to Rule 1113. These same environmental topics are analyzed relative to the currently proposed project. The following sections include the analyses of the potential adverse environmental impacts of implementing the proposed amendments.

AIR QUALITY

The proposed amendments will implement, in part, the 1994 and the 1997 AQMP Control Measure CTS-07 for architectural coatings. While there are many types of architectural coatings currently in use, the currently proposed amendments would reduce the allowable VOC content of eleven coating categories: industrial maintenance (IM) coatings, high temperature IM coatings, non-flats, quick-dry enamels, primers/sealers/undercoaters (PSU), rust preventive coatings, floor coatings, quick-dry PSU, water-proofing wood sealers, roof coatings, and stains[7]. As noted in Table 2-1 in Chapter 2, PAR 1113 is expected to reduce VOC emissions from architectural coatings approximately 21.8 tons per day upon final compliance. ~~The foregone emissions from the higher interim VOC content limit for essential public service coatings is estimated to be 27 pounds of VOC per day (or 0.0135 tons per day).~~ The emissions reductions foregone from the extended compliance date for small businesses is negligible because of the minor amount of coatings used.

Significance Criteria

The project will be considered to have significant adverse air quality impacts if any one of the thresholds in Table 4-1 are equaled or exceeded.

TABLE 4-1

SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
TAC, AHM, and Odor Thresholds		
Toxic Air Contaminants (TACs)	MICR $\geq$ 10 in 1 million HI $\geq$ 1.0 (project increment) HI $\geq$ 3.0 (facility-wide)	
Accidental Release of Acutely Hazardous Materials (AHMs)	CAA §112(r) threshold quantities (see Table 5-2)	

[7] From this point forward, in many instances, these coatings, which are the target of these rule amendments, may be generically referred to as "affected coatings".

TABLE 4-1 (CONCLUDED)

SCAQMD Air Quality Significance Thresholds

Change in Concentration Thresholds	
NO_2 1-hour average annual average	 20 ug/m^3 (= 1.0 ppm) 1 ug/m^3 (= 0.05 pphm)
PM10 24-hour annual geometric mean	 2.5 ug/m^3 1.0 ug/m^3
Sulfate 24-hour average	 1 ug/m^3
CO 1-hour average 8-hour average	 1.1 mg/m^3 (= 1.0 ppm) 0.50 mg/m^3 (= 0.45 ppm)

MICR = maximum individual cancer risk; HI = Hazard Index; ug/m^3 = microgram per cubic meter; pphm = parts per hundred million; mg/m^3 = milligram per cubic meter; ppm = parts per million; TAC = toxic air contaminant;

AHM = acutely hazardous material

Air Quality Impacts

The objective of PAR 1113 is to reduce VOC emissions from affected coating categories. Analysis of PAR 1113 indicates that the proposed project is expected to generate direct air quality benefits. The direct effect of the proposed amendments to Rule 1113 is a reduction of VOC emissions from affected sources.

Analysis of Industry Issues

The following subsections describe each of eight issues that may create significant adverse air quality impacts from amending Rule 1113. These issues were raised by industry representatives in the Industry Working Group meetings and identified in comments on the NOP/IS. These eight issues focus on two main points. The first seven issues are all contentions that the new formulations, either solvent-borne or waterborne, result in more coating use, or use of noncompliant coatings, and an overall increase in VOC emissions over a period of time. The eighth issue is the contention that low-VOC waterborne and solvent-borne coatings have a higher reactivity than high VOC coatings that use more reactive solvents than conventional coating formulations and, therefore, contribute at a greater rate to ozone formation. They also contend that under low-NOx conditions, some solvents actually have a negative reactivity.

As previously mentioned in the Executive Summary, the appellate court in 1993 has already determined that six of the eight issues asserted by industry and contractors had been adequately addressed in the previously prepared CEQA document (a Determination of No Significant Impacts - DONSI) certified in February 1990[8]. However, the lower court set aside the VOC limits for IM and PSU coatings because the court felt that the issue of thinning had not been adequately addressed in that document. The SCAQMD did not appeal this finding.

As mandated by the court judgment the thinning issue associated with the amended coating categories adopted in February 1990, as well as the other affected coating categories, has been evaluated. Staff has also reanalyzed the other six potential issues and also the substitution issue. As demonstrated in the preceding subsections, staff continues to believe those six other alleged issues as well as the substitution issue do not result in significant adverse air quality impacts

It should be noted that during the November 1996 rulemaking process, the eight issues as mentioned above were discussed in detail for flats and lacquers. Each of the aforementioned eight issues were analyzed in the Draft and Final Subsequent Environmental Assessment for the November 1996 rule amendments. In each case, it was concluded that the coating manufacturers' and contractors' claims for an increase in emissions as a result of the reformulation of low-VOC coatings were not supported by any credible or empirical evidence. The Los Angeles County Superior Court has upheld this conclusion, which was upheld by the Court of Appeal.

More Thickness

PROJECT SPECIFIC IMPACT: Industry representatives contend that reformulated compliant water- and solvent-borne coatings are very viscous (e.g., are formulated using a high-solids content) and, therefore, are difficult to handle during application, tending to produce a thick film when applied directly from the can. A thicker film indicates that a smaller surface area is covered with a given amount of material, thereby increasing VOC emissions per unit of area covered.

ANALYSIS: SCAQMD staff evaluated product data sheets for approximately 340 conventional and low-VOC coatings to compare solids content by volume, coverage area, drying time, pot life, shelf life and durability. Table 4-2 is a summary of these coating characteristics grouped by coating categories as defined by Rule 1113. Staff has asserted in the past and continues to maintain that a coating with more solids will actually cover a greater surface area. This contention is generally supported for the PAR 1113 affected coating categories. Low-VOC quick-dry enamels, PSU, quick-dry PSU, rust preventative coatings and stains, on the average, generally have a lower solids content and a lower area of coverage than conventional coatings. Low-VOC nonflats have a solids content and area of coverage comparable to conventional coatings. Low-VOC floor coatings and IM coatings, on the average, have a higher solids content with a comparable to slightly

[8] The seventh issue, substitution, was not specifically identified as an issue in the litigation. It was incorporated into the other six issues.

less area of coverage than conventional coatings.

These results demonstrate that currently available low-VOC coatings are not necessarily formulated with a higher solids content. Further, a higher solids content does not result in a significant reduction in the coverage area. The information from the coating product data sheets tends to corroborate a positive correlation between solids content and the coverage area. *Although Table 4-2 has been modified to reflect the latest update to Appendix D – Summary of Coating Characteristics, the conclusions reached in the Draft SEA have not changed.*

TABLE 4-2

Summary of Coating Characteristics

Coating Category	# of samples	Range of VOC Content (gm/l)	Average VOC Content (gm/l)	Average % Solids by Volume	Average Coverage (sq ft/gal) @ ~3 mil	Average Drying Time (hrs) Between Coats	Average Pot Life* @70 deg. (hrs)	Average Shelf Life (yrs)
Floor Coatings (420-100 g/l)	9	114-420	338	47.5	356	n/a	8.5	2.3
Floor Coatings (100-50 g/l)	~~5~~ *13*	~~76~~ *56* - 100	~~86~~ *82*	~~75.1~~ *54.8*	~~440~~ *309*	n/a	~~2.4~~ *2.2*	1.8
Floor Coatings (< 50 g/l)	~~13~~ *24*	0 - *29*	~~0~~ *2*	~~80.4~~ *79*	~~331~~ *328*	n/a	~~1.9~~ *1.5*	~~1.4~~ *1.3*
Industrial Maintenance Coatings (420-250 g/l)	47	257-420	354	58.1	352	n/a	6.3	1.6
Industrial Maintenance Coatings (250-100 g/l)	~~26~~ *45*	~~114~~ *101*-250	~~194~~ *188*	~~52.5~~ *55.2*	~~273~~ *296*	n/a	~~8~~ *7.4*	~~2.4~~ *1.9*
Industrial Maintenance Coatings (<100 g/l)	~~61~~ *114*	0-108	~~39.7~~ *24*	~~74.4~~ *82.8*	~~306~~ *391*	n/a	~~2.5~~ *1.4*	~~1.2~~ *1.3*
Nonflats (250-150 g/l)	~~10~~ *26*	~~215~~ *153*-250	~~239~~ *215*	~~39~~ *37.7*	~~400~~ *382*	~~8.5~~ *7.1*	n/a	~~2.6~~ *2.2*
Nonflats (150-50 g/l)	~~29~~ *69*	~~59-135~~ *56-150*	~~94.5~~ *106*	35	~~359~~ *346*	~~6.7~~ *7.8*	n/a	~~2.9~~ *2.7*
Nonflats (<50 g/l)	~~16~~ *37*	0-50	~~11.1~~ *4.4*	~~39.7~~ *40.6*	~~407~~ *385*	~~11.3~~ *5.7*	n/a	1
Quick Dry Enamels (400-150 g/l)	~~6~~ *11*	164-400	~~290~~ *267*	~~54.1~~ *48.3*	~~432~~ *365*	~~6.0~~ *4.9*	n/a	1
Quick Dry Enamels (<150 g/l)	4	88-154	120	35.8	407	3.2	n/a	1

TABLE 4-2 (CONCLUDED)

Summary of Coating Characteristics

Coating Category	# of samples	Range of VOC Content (gm/l)	Average VOC Content (gm/l)	Average % Solids by Volume	Average Coverage (sq ft/gal) @ ~3 mil	Average Drying Time (hrs) Between Coats	Average Pot Life* @70 deg. (hrs)	Average Shelf Life (yrs)
Primer, Sealer, Undercoater (350-200 g/l)	~~28~~ *29*	~~220~~ *209*-350	~~314~~ *310*	51.4	~~393~~ *387*	13	~~6.5~~ *7.5*	1.7
Primer, Sealer, Undercoater (200-100 g/l)	~~10~~ *14*	113-206	~~160.4~~ *151.7*	~~44.2~~ *42.4*	~~350~~ *306*	5	~~16~~ *6*	~~2.6~~ *2.4*
Primer, Sealer, Undercoater (<100 g/l)	~~29~~ *51*	0-109	~~53.7~~ *70.6*	~~42.9~~ *41.3*	~~372~~ *346*	~~7.9~~ *5.1*	2.4	~~2.3~~ *2.1*
Quick Dry Primer, Sealer, Undercoater (exempt – 200 g/l)	9	340-560	464	40.4	401	2	7	1.9
Quick Dry Primer, Sealer, Undercoater (200-100 g/l)	6	115-141	124	45.1	353	2.1	n/a	2.7
Quick Dry Primer, Sealer, Undercoater (<100 g/l)	~~17~~ *21*	0-108	67.7	39.3	370	~~1.8~~ *3.9*	n/a	~~1.0~~ *1.1*
Water Proofing Wood Sealer (400-250 g/l)	~~5~~ *6*	*282*-400	~~400~~ *380*	~~14.7~~ *13.3*	~~160~~ *175*	n/a	n/a	1.0
Water Proofing Wood Sealer (<250 g/l)	10	0-241	~~73.9~~ *71.2*	~~46.3~~ *46.8*	~~224~~ *214*	n/a	4.7	1.4
Stains (350-250 g/l)	~~3~~ *4*	350	350	~~55.6~~ *49.2*	~~367~~ *350*	~~24~~ *18.8*	n/a	5.3
Stains (<250 g/l)	~~10~~ *23*	0-250	~~148.9~~ *116.5*	25.7	~~299~~ *275*	~~6.2~~ *4.2*	n/a	~~5.0~~ *4*
Rust Preventative Coatings (350-100 g/l)	6	198-350	313	61.1	435	n/a	4	2.7
Rust Preventative Coatings (<100 g/l)	~~4~~ *5*	0-94	~~23.5~~ *24.8*	50	~~306~~ *305*	n/a	2.5	2.0

* *For two-component coatings only*

As a comparison, Table 4-3 shows that the 1998 CARB Survey yielded similar results for average VOC content as the random sampling of low-VOC coatings to their conventional counterparts. The survey showed a consistent trend of a sales weighted average lower percent solids by volume in coatings with lower-VOC content.

Based upon the results of the SCAQMD and CARB surveys, staff concludes that the data do not support the industry's assertion that compliant low-VOC coatings are necessarily formulated with a higher solids content than conventional coatings. Further, the data do not support their assertion that there is an inverse correlation between solids content and coverage area.

TABLE 4-3

1998 CARB Survey

	CARB Survey Results	
Coating Types	**Average VOC Content (gm/l)**	**Average Solids by Volume (%)**
Floor Coatings (>250 g/l)	149	83
Floor Coatings (<250 g/l)	164	34
IM Coatings (>250 g/l)	436	56
IM Coatings (<250 g/l)	124	36.6
Nonflats (>250 g/l)	331	58
Nonflats (<250 g/l)	164	36
Quick Dry Enamels (>250 g/l)	403	50
Quick Dry Enamels (<250 g/l)	n/a	n/a
PSU (>250 g/l)	384	46
PSU (<250 g/l)	101	31
Quick Dry PSU (>250 g/l)	432	45
Quick Dry PSU (>250 g/l)	136	41
Water Proofing Sealer (>250 g/l)	339	50
Water Proofing Sealer (<250 g/l)	227	30
Rust Preventive Coatings (>250 g/l)	382	48
Rust Preventive Coatings (<250 g/l)	144	39
Stains(>250 g/l)	412	47
Stains(>250 g/l)	203	30

Illegal Thinning

PROJECT SPECIFIC IMPACT: As directed by the court, the SCAQMD has extensively analyzed the alleged air quality impacts due to more thinning. In oral testimony received by the SCAQMD from a few industry representatives, it has been asserted that thinning occurs in the field in excess of what is allowed by the SCAQMD rule limits. It is asserted that, because reformulated compliant water- and solvent-borne coatings are more viscous (e.g., high-solids content), painters have to adjust the properties of the coatings to make them easier to handle and apply. In particular for solvent-borne coatings this adjustment consists of thinning the coating as supplied by the manufacturer by adding solvent to reduce its viscosity. The added solvent increases VOC emissions back to or sometimes above the level of older formulations.

ANALYSIS: It has been further asserted that manufacturers will formulate current noncompliant coatings by merely increasing the solids content, which would produce a thicker film. Industry claims that a thicker film means less coverage. Therefore, thinning will occur to get the same coverage area as current noncompliant coatings resulting in more VOC emissions per area covered. As shown in Table 4-2 (see also the "More Thickness" discussion), based upon manufacturer's claims regarding coverage, low-VOC coatings have comparable coverage area compared to conventional coatings. As a result, the data indicate that it is not true that a painter will have to thin low-VOC solvent-borne coatings to obtain the same coverage.

Many of the reformulated compliant coatings are water-borne formulations or will utilize exempt solvents, thereby eliminating any concerns of thinning the coating as supplied and increasing the VOC content as applied beyond the compliance limit. Since exempted solvents are not considered a reactive VOC, thinning with them would, therefore, not increase VOC emissions. Water based coatings are thinned with water and would also not result in increased VOC emissions.

Extensive research has been conducted the last six years prior to 1998 to determine whether or not thinning of materials beyond the allowable levels occurs in the field. As part of the AQMD's fact finding and data gathering phase of the rule amendment process, staff conducted site visits to various locations where lower-VOC, compliant coatings have been utilized, to observe on a first-hand basis, the challenges and issues related to use of the lower-VOC coatings. In addition, since January 1996, staff has conducted over 100 unannounced site visits to evaluate contractor practices relating to thinning, application, and clean up. During these site visits, samples were collected for coatings actually being utilized, as applied and as supplied, for laboratory analysis and subsequent study of impacts of thinning.

Subsequent to the most recent amendments to Rule 1113 in November 1996, actual samples were taken at 47 sites with ongoing painting operations. Of the 59 samples collected, 36 were waterborne and 23 were solvent-borne. Of the 23 solvent-borne coatings, six represented three sets, which were for the same coating as supplied and as applied. All three sets that were thinned with solvent prior to use were analyzed, with none exceeding the compliance limit. All three sets were Industrial Maintenance Coatings.

Phase II of the field study consisted of purchasing and analyzing paint samples from various retail outlets. Since January 1996, 42 samples, consisting of various coating categories, were purchased and analyzed. All of the coatings analyzed were found to be in compliance with the applicable rule limit. Laboratory tests indicated that the reported VOC content on the container was generally higher than the VOC content as tested. The difference in the actual VOC content versus the reported VOC content ranged from five percent to over 60 percent. A trend of listing a maximum VOC content at the actual compliance limit was noted to be the practice. Of the samples purchased, seven were found to be in violation of Rule 1113, mostly waterproofing sealers. The SCAQMD believes that part of the reason for these violations is confusion over the definition of waterproofing sealers, which is currently being clarified.

A number of additional studies have addressed the thinning issue. The results are detailed below:

- In mid-1991, the California Air Resources Board (CARB) conducted a field study of thinning in regions of California that have established VOC limits for architectural coatings (CARB, 1991). A total of 85 sites where painting was in progress were investigated. A total of 121 coatings were in use at these sites, of which 52 were specialty coatings. The overall result of this study was that only six percent of the coatings were thinned in excess of the required VOC limit indicating a 94 percent compliance rate.

- The SCAQMD contracted with an environmental consulting firm, to study thinning practices in the district (SCAQMD 1993a). In Phase I of the study, consumers who had just purchased paints were interviewed as they left one of a number of stores located in different areas of the district. Seventy solvent-borne paint users responded to the survey. One-third of consumers purchased solvent-borne coatings. Of those surveyed, three (four percent of all solvent-borne paint purchasers) indicated that they planned to thin their coatings before use. In Phase II of the study, the consultant contacted 36 paint contractors. The majority stated that they were using water-borne coatings. Four contractors using solvent-borne paints allowed the consultant to collect paint samples at their painting sites. None of the samples collected were thinned.

- During the 1996 rule amendments to Rule 1113, SCAQMD staff conducted over 60 unannounced site visits to industrial parks and new residential construction sites to survey contractors regarding their thinning practices, coating application techniques, and clean-up practices. Samples were also collected during these site visits for coatings as supplied and as applied, for laboratory analysis and subsequent study of thinning practices. The results of the study indicate that out of the 91 samples taken only nine were thinned with solvents. Out of the nine thinned samples, only two were thinned to the extent that the VOC content limit of the coating, as applied, would have exceeded the applicable rule limit. During pre-arranged visits, however, excessive thinning was observed at only one site at a 1:2 ratio. At this level, the coating was thinned to the point where, according to the professional contractor using it, it did not provide adequate hiding and he had to apply several coats. The practice of over-thinning is expected to inhibit hiding power, application properties, and drying time of a coating.

The SCAQMD solicited empirical data from the paint industry on a number of occasions to support their claims of increased thinning. In contrast to the empirical data acquired from the field studies detailed above, the SCAQMD has received no countervailing empirical data from other sources to indicate that thinning is occurring to a greater extent than the above data would indicate.

In summary, field investigations of actual painting sites in the district and other areas of California that have VOC limits for coatings indicate that thinning of specialty coatings exists but rarely beyond the actual compliance limits. Even in cases where thinning does occur, it is rarer still for paints to be thinned to levels that would exceed applicable VOC content limits. The conclusion is that widespread thinning does not occur often; when it does occur, it is unlikely to occur at a level that would lead to a substantial emissions increase when compared with emissions from higher VOC coatings. Professional contractors can receive Notices of Violation (NOVs) for the practice of over-thinning, as it is illegal under the current version of the rule to exceed the specified compliance limits. It is, therefore, not likely that the proposed rule amendments would increase this practice. During the numerous surprise site visits conducted by district staff over many years, inspectors did not observe excess thinning to the degree cited by the industry representatives.

CONCLUSION: Thinning should not be a problem because a majority of the coatings that would comply with future limits will be waterborne formulations. Other compliant coatings are available may be applied without thinning. Even if some thinning occurs, thinning would likely be done with water or exempt solvents. Finally, current practice indicates that coating applicators do not engage in widespread thinning, and even when thinning occurs, the coatings VOC content limits are not exceeded. As a result, claims of thinning resulting in significant adverse air quality impacts are unfounded.

More Priming

PROJECT SPECIFIC IMPACT: Conventional coatings are currently used as part of a three, four, or five part coating system, consisting of one or more of the following components; primer, midcoat, and topcoat. Coating manufacturers and coating contractors have asserted that reformulated compliant low-VOC water- and solvent-borne topcoats do not adhere as well as higher-VOC solvent-borne topcoats to unprimed substrates. Therefore, the substrates must be primed with typical solvent-borne primers to enhance the adherence quality. Industry representatives have testified that the use of water-borne compliant topcoats, could require more priming to promote adhesion.

Additionally, it is has been asserted that water-borne sealers do not penetrate and seal porous substrates like wood, as well as traditional solvent-borne sealers. This allegedly results in three or four coats of the sealer per application compared to one coat for a solvent-borne sealer would be necessary, resulting in an overall increase in VOC emissions for the coating system.

ANALYSIS: Regarding surface preparation, staff evaluated this characteristic as part of the evaluation of coating product data sheets mentioned above and recent studies conducted (see the detailed tables in Appendix D and status reports in Appendix G). Information from the coating product data sheets indicated that low-VOC coatings do not require substantially different surface preparation than conventional coatings. According to the product data sheets, conventional and low-VOC coatings require similar measures for preparation of the surface (i.e. apply to clean, dry surfaces), and application of the coatings (i.e. brush, roller or spray). Both low-VOC coatings and conventional coatings for both architectural and industrial maintenance applications have demonstrated the ability to adhere to a variety of surfaces. As a part of the technology assessment, staff analyzed the product data sheets for a variety of low-VOC primers, including stain-blocking primers, primers that adhere to alkyds, and primers that have equal coverage to conventional solvent-borne primers, sealers, and undercoaters.

CONCLUSION: As a result, based on the coating manufacturer's coating product data sheets, the material needed and time necessary to prepare a surface for coating is approximately equivalent for conventional and low-VOC coatings. More primers are not needed because low-VOC coatings possess comparable coverage to conventional coatings, similar adhesion qualities and consistent resistance to stains, chemicals and corrosion. Low-VOC coatings tend not to require any special surface preparation different from what is required before applying conventional coatings to a substrate. As part of good painting practices for any coating, water-borne or solvent-borne, the surface typically needs to be clean and dry for effective adhesion. Consequently, claims of significant adverse air quality impacts resulting from more priming are unfounded.

More Topcoats

PROJECT-SPECIFIC IMPACTS: Coating manufacturers and coating contractors assert that reformulated compliant water- and low-VOC solvent-borne topcoats may not cover, build, or flow-and-level as well as the solvent-borne formulations. Therefore, more coats are necessary to achieve equivalent cover and coating build-up.

ANALYSIS: Technology breakthroughs with additives used in recent formulations of low-VOC coatings have minimized or completely eliminated flow and leveling problems. These flow and leveling agents mitigate flow problems on a variety of substrates, including plastic, glass, concrete and resinous wood. These additives even assist in overcoming flow and leveling problems when coating oily or contaminated substrates. According to the product data sheets for the sampled coatings, water-borne coatings have proven durability qualities. Comparable to conventional coatings, water-borne coatings for architectural applications are resistant to scrubbing, stains, blocking and UV exposure. Coating manufacturers, such as Dunn-Edwards, ICI, Pittsburgh Paints and Sherwin Williams, formulate low-VOC nonflat coatings (<150 g/l) with high build and excellent scrubability. Most of the coatings are mildew resistant and demonstrate excellent washability characteristics. The coverage of the coatings average around 400 square feet per gallon, which is equivalent to the coverage of the conventional nonflat coatings. Con-Lux, Griggs Paint and Spectra-Tone also formulate even lower VOC (<50 g/l) coatings that also demonstrate excellent durability, washability, scrubability and excellent hide. The coverage is again equivalent to the conventional coatings around 400 square foot per gallon. As already noted in the "More Thickness" discussion, low-VOC coatings that have a high solids content have equivalent or slightly superior coverage compared to high VOC coatings.

According the other coating manufacturer's product data sheets, water-borne coatings for IM applications are resistant to chemicals, corrosion, chalk and abrasion. Both water-based and low-VOC solvent-based IM coating formulations have passed abrasion and impact resistance tests, such as ASTM test methods D4060 and G14, respectively. Similar to their conventional counterparts, water-borne IM coatings also tend to retain gloss and color, as well as have good adhesion to a variety of substrates. A majority of the low-VOC (<250 g/l) IM coatings passed adhesion tests, such as ASTM test methods D4541, D3359-78, D2197 or D412. Low-VOC IM coatings tend to have comparable coverage (approximately 300 square feet per gallon) to conventional IM coatings.

CONCLUSION: Both low-VOC and conventional coatings have comparable coverage and superior performance. These low-VOC coatings possess scrub and stain resistant qualities, blocking and resistance to UV exposure for the exterior coatings. Both low-VOC and conventional IM coatings tend to have chemical and abrasion resistant qualities, gloss and color retention, and comparable adhesion qualities. With comparable coverage and equivalent durability qualities, additional topcoats for low-VOC coatings should not be required.

More Touch-Ups and Repair Work

PROJECT-SPECIFIC IMPACTS: Coating manufacturers and coating contractors assert that reformulated compliant water- and low-VOC solvent-borne formulations dry slowly, and are susceptible to damage such as sagging, wrinkling, alligatoring, or becoming scraped and scratched. They also claim that the high-solids solvent-borne alkyd enamels tend to yellow in dark areas, and that water-borne coatings tend to blister or peel, and also result in severe blocking problems. All of these problems they claim require additional coatings for repair and touch-up.

ANALYSIS: Extra touch-up and repair and more frequent coating applications are related to durability characteristics of coatings. Staff met with numerous resin and coatings manufacturers to discuss this issue, and also reviewed coating product data sheets and recent studies conducted (see the detailed tables in Appendix D and status reports in Appendix G) to obtain durability information for low-VOC coatings and conventional coatings. Based on information in the coating product data sheets, comparable to conventional coatings, water-borne coatings for architectural applications are resistant to scrubbing, staining, blocking and UV exposure. They were noted for excellent scrubability and resistant to mildew. The average drying time between coats for the low-VOC coatings (<150 g/l) was less than the average drying time for the conventional coatings (250 g/l). The average drying time for the lower-VOC coatings (<50 g/l) did increase more than the conventional coatings. However, with the development of non-volatile, reactive diluents combined with hypersurfactants, performance of these nearly zero-VOC coatings has equaled, and for some characteristics, outperformed traditional, solvent containing coatings.

Water-borne coatings for IM applications are resistant to chemicals, corrosion, chalk, impact and abrasion. Similar to their conventional counterparts, water-borne IM coatings also tend to retain gloss and color, as well as have good adhesion to a variety of substrates. Further, both low-VOC coatings and conventional coatings tend to be comparable with regards to passing abrasion and impact resistance tests, and are considered to have proven durability qualities. Some IM low-VOC epoxy and urethane systems perform significantly better than their alkyd-based counterparts. Examples of these coatings can be found in Appendix D and in the status reports in Appendix G.

CONCLUSION: Therefore, based on the durability characteristics information contained in the coating product data sheets, low-VOC coatings and conventional coatings have comparable durability characteristics. As a result, it is not anticipated that more touch up and repair work will need to be conducted with usage of low-VOC coatings. Consequently, claims of significant adverse air quality impacts resulting from touch-up and repair for low-VOC coatings are unfounded.

More Frequent Recoating

PROJECT-SPECIFIC IMPACT: Coating manufacturers and coating contractors assert that the durability of the reformulated compliant water- and low-VOC solvent-borne coatings is inferior to the durability of the traditional solvent-borne coatings. Durability problems include cracking, peeling, excessive chalking, and color fading, which all typically result in more frequent recoating. As a result, they claim more frequent recoating would be necessary resulting in greater total emissions than would be the case for conventional coatings.

ANALYSIS: The durability of a coating is dependent on many factors, including surface preparation, application technique, substrate coated, and exposure conditions. Again, as mentioned above, key durability characteristics, as discussed in coating product data sheets, include resistance to scrub or abrasion, corrosion-, chemicals-, impact-, stain-, and UV- resistance, are similar between conventional and low-VOC coatings. Both coating types pass abrasion and impact resistance tests, and have similar durability qualities. According to the coating product data sheets, low-VOC coatings repeatedly would not need additional surface preparation than what needs to be done to prime the surface for conventional coatings (see also “More Priming” discussion above). The technique to applying the coatings did not significantly differ either. It is expected that if applied using manufacturers’ recommendations, compliant low-VOC coatings should be as durable as conventional coatings and, therefore, no additional recoating is required from the usage of low-VOC coatings. Furthermore, overall durability is dependent on the resin used in the formulation as well as the quality of pigment, instead of just the VOC content of the coating.

The durability of a coating is governed by the nature of the binder used in its formulation, which are also known as film formers or resins. Table 4-4 shows the tow main resin types currently in use. Acrylic resins are generally associated with low VOC coatings and alkyd resins are typically associated with high VOC coatings. These coatings are exposed to a variety of influences of daily life, including mechanical stresses, chemicals and weathering, against which they serve to protect the substrate. The major impact on the coating film is oxidation by exposure to light, causing the film to first lose color and gloss, and gradually become brittle and incoherent. This is mainly caused by a process known as photochemical degradation. This is especially the case for coatings used for exterior painting.

The coatings industry has developed a variety of additives that act as ultraviolet light (UV) absorbers or free radical scavengers that ultimately slow down the photo-oxidative process, thereby increasing the coating life. Antioxidants and sterically hindered amines are two classes of free radical scavengers, also known as hindered amine light stabilizers (HALS). These can be used with solvent-free or waterborne coatings. Other additives that have positive effect on durability of coatings include adhesion promoters, corrosion inhibitors, curing agents, reactive diluents, optical brightners, and algicides/mildewcides.

TABLE 4-4

Performance Comparison of Acrylic (Low VOC)
and Alkyd (High VOC)Resin Systems

Acrylic Coatings	Alkyd Coatings
Low-VOC and solvent-free formulations available	Higher VOC formulations

TABLE 4-4 (CONCLUDED)

Performance Comparison of Acrylic (Low VOC)
and Alkyd (High VOC)Resin Systems

Acrylic Coatings	Alkyd Coatings
Excellent exterior durability because of high degree of resistance to thermal, photooxidation, and hydrolysis – Pendant groups are ester bonds, but body is C-C bonds, which are much harder to break.	Limited exterior durability because prone to hydrolysis.
Very good color and gloss retention, and resistance to embrittlement	Embrittlement and discoloration issues with age
Require good surface preparation. Since the surface tension is high, the substrate surface needs to be cleaner before application	Minimal surface preparation requirements due to low surface tension. Relatively foolproof applications
Acrylic coatings are generally higher in cost	Lower costs
Polyurethane modified acrylics perform even better, especially in flexibility	Rapid drying, good adhesion, and mar resistance. Silicone modified alkyds have higher performance

As indicated earlier in this report, there are numerous types of binders used in the formulation of coatings. However for architectural uses, acrylics and alkyds are the two most commonly used. Table 4-4, extracted from material provided as part of the Durability and Performance of Coatings seminar held by Eastern Michigan University, describes some typical characteristics of the two main resin types and highlights strengths and weaknesses of each resin type. But, clearly the table emphasizes the superior durability of acrylic coatings. Utilizing the additives available for improving application and durability characteristics, waterborne acrylic systems have overcome their limitations, and generally outperform solvent-borne coatings, when properly formulated.

CONCLUSION: Coatings manufacturers' own data sheets indicate that the low-VOC coatings for both architectural and industrial maintenance applications are durable and long lasting. Any durability problems experienced by the low-VOC coatings are not different than those seen with conventional coatings. Recent coating technology has improved the durability of new coatings. Because the durability qualities of the low-VOC coatings are comparable to the conventional coatings, more frequent recoatings would not be necessary.

Substitution

PROJECT-SPECIFIC IMPACT: Coating manufacturers and coatings contractors assert that since reformulated compliant water- and low-VOC solvent-borne coatings are inferior in durability and are more difficult to apply, consumers and contractors will substitute better performing high VOC coatings in other categories for use in categories with low compliance limits. An example of this substitution could be the use of a rust preventative coating, which has a higher VOC content limit requirement, in place of an IM coating or a nonflat coating.

ANALYSIS: There are several reasons why widespread substitution will not occur as a result of the implementation of PAR 1113. First and foremost, based on staff research of resin manufacturers' and coating formulators' product data sheets as well as recent studies conducted, there are, generally, a substantial number of low-VOC coatings in a wide variety of coating categories that are currently available, that have performance characteristics comparable to conventional coatings (see the tables in Appendix D, status reports in Appendix G, and Table 4-2). Second, PAR 1113 prohibits the application of certain coatings in specific settings. For example, industrial maintenance coatings cannot be used in residential, commercial, or institutional setting. Also, rust preventive coatings cannot be used in industrial settings. Third, the type of performance (e.g., durability) desired in some settings would prohibit the use of certain coatings. For example, in an IM setting a coating with a life of 10 years or more is typically desired due to the harshness of the environment. Therefore, it is unlikely that an alkyd-based rust preventive coating with a typical life of five years would be used in place of an IM coating. Fourth, PAR 1113 requires that when a coating can be used in more than one coating category the lower limit of the two categories is applicable. For example, a rust preventive coating substituted for an IM coating in the interim year would have to meet the lower IM interim limit. Lastly, SCAQMD enforcement records reveal that there is greater than 99 percent compliance rate with Rule 1113. Thus, it highly unlikely that coating applicators will violate PAR 1113 by substituting higher-VOC coatings for lower-VOC coatings.

CONCLUSION: As discussed above, the SCAQMD does not expect that low-VOC coatings used for specific coating applications will be substituted for by higher-VOC coatings used for other specific types of coating applications. Currently, there are a substantial number of low-VOC coatings in a wide variety of coating categories that have performance characteristics comparable to conventional coatings. Furthermore, PAR 1113 prohibits the application of certain coatings in specific settings. Moreover, the type of performance desired in some settings would prohibit the use of certain coatings in those settings. PAR 1113 also requires that when a coating can be used in more than one coating category the lower limit of the two categories is applicable. Lastly, SCAQMD enforcement records reveal that there is greater than 99 percent compliance rate with Rule 1113.

If in the rare event that substitution does occur, PAR 1113 would still achieve overall VOC emission reductions. Substitution would only result in lesser emission reductions than expected, it would not increase emissions as compared to the existing setting. Consequently, PAR 1113 will not result in significant adverse air quality impacts from the substitution of low-VOC coatings with higher-VOC coatings.

More Reactivity

Different types of solvents have different degrees of "reactivity," which is the ability to accelerate the formation of ground-level ozone. Coating manufacturers and coating contractors assert that the reformulated compliant low-VOC water- and solvent-borne coatings contain solvents that are more reactive than the solvents used in conventional coating formulations. Furthermore, water-borne coatings perform best under warm, dry weather conditions, and are typically recommended for use between May and October. Since ozone formation is also dependent on the meteorological conditions, use of waterborne coatings during this period increases the formation of ozone.

ANALYSIS: The use of reactivity as a regulatory tool has been debated at the local, state, and national level for over 20 years. For example, CARB incorporated a reactivity-based control strategy into its California Clean Fuel/Low Emissions Vehicle regulations, where reactivity adjustment factors are employed to place regulations of exhaust emissions from vehicles using alternative fuels on an equal ozone impact basis. CARB is evaluating a similar strategy for consumer products and industrial emissions, and contracted with Dr. William Carter, University of California at Riverside, Center for Environmental Research and Technology, College of Engineering, for a two-year study to assess the reactivities of VOC species found in the consumer products emissions inventory. Dr. Carter, one of the principal researchers of reactivities of various VOC species, plans to further study VOC species, more specifically glycol ethers, esters, isopropyl alcohol, methyl ethyl ketone (MEK), and an octanol, since these are typically found in either waterborne coatings, solvent-borne coatings, or both. These specific VOCs have been prioritized based on emissions inventory estimates, mechanistic uncertainties, and lack of information in the current reactivity data. Under the current models and ozone chamber studies, however, Dr. Carter has been unable to assess the reactivity of low volatility compounds, and has not succeeded in reducing the uncertainties of key VOC species used in AIM coatings. He did identify the state of science with respect to VOC reactivity and described areas where additional work is needed in order to reduce the uncertainty associated with different approaches to assessing reactivity.

Another factor to be considered in the reactivity based approach, and probably the most important, is an accurate speciation profile of waterborne and solvent-borne coatings. CARB, in its effort to get more detailed information about the speciation profiles, required speciation profiles of all coatings included in the 1998 CARB Survey. The results of the speciation data are still under evaluation, and could potentially be used for future reactivity-based architectural coatings control.

CARB did propose an alternative reactivity-based approach in its recent proposed Aerosol Coatings rule amendment, but has delayed the reactivity-based alternative, until after a complete peer review of the modeling assumptions and reactivity data included in Dr. Carter's research.

The contention that more reactive solvents will be used in lieu of traditional less reactive solvents is somewhat misleading because the coating categories affected by these rule amendments currently contain reactive and highly toxic solvents such as toluene, xylene, MEK, etc. Furthermore, Harley, et al., (1992) noted, "The speciated organic gas emissions from use of solvent-borne architectural coatings are 24 percent more reactive than the official [VOC] inventory would suggest." This observation suggests that solvent-borne architectural coatings may actually be more reactive than low-VOC coatings especially water-based coatings. Therefore, there is a need for further study of the chemical composition of industrial surface coatings and the detailed composition of petroleum distillate solvents incorporated in surface coatings.

To date, Dr. Carter has compiled some information regarding the reactivity of VOCs and has established several different reactivity scales. However, he cautions the use of these scales due to the uncertainties involved; for example, "Deriving such numbers is not a straightforward matter and there are a number of uncertainties involved. One source of uncertainty in the reactivity scales comes from the fact that ozone impacts of VOCs depend on the environment where the VOC is emitted. A second source of uncertainty is variability in the chemical composition of the VOC source being considered. Complex mixtures such as "mineral spirits" may be more difficult to characterize and may vary from manufacturer to manufacturer though in principal the composition of a given lot can be determined and reasonably assumed to be constant regardless of how the product is used. A third source of uncertainty comes from the complexity and uncertainties in the atmospheric processes by which emitted VOCs react to form ozone (Carter, 1995).

According to Dr. Carter, reliable reactivity numbers do not currently exist from which accurate air quality policy can be derived based on reactivity and not total VOC emissions. Further, Dr. Carter, asserts that ketones are the most important class of consumer emissions for which there are no environmental chamber reactivity data suitable for evaluating reactivity predictions. He also finds no experimental reactivity data for glycols or alcohols suitable for mechanism evaluation. (Carter, 1995, page 6).

Another factor to be considered in the reactivity based approach, and probably the most important, is an accurate speciation profile of water-borne and solvent-borne coatings. Dr. Albert C. Censullo, Professor of Chemistry, California Polytechnic State University, San Luis Obispo, conducted a comprehensive assessment of species profiles for a number of sources within the general categories of industrial and architectural coating operations. The study was intended to upgrade the existing species profiles, which were last analyzed in 1991. The compositions of industrial and architectural coatings have changed significantly in the last few years due to regulatory changes at the national, state, and local levels.

As a part of the Censullo study, 52 water-borne coating samples were analyzed and species profiles were determined by using an average of at least two analyses. The four most common solvents in water-borne coatings were identified as texanol, propylene glycol, diethylene glycol butyl ether, and ethylene glycol, all of which were identified by Dr. Carter as needing further reactivity assessment.

Additionally, the Censullo study obtained emission profiles for 54 solvent-borne coating samples. The results were significantly more complex compared to the species profiles for the water-borne samples, due primarily to the various petroleum fractions used in solvent-borne coatings. Some of the species profiles resulted in several hundred components from one sample. Dr. Carter has compiled reactivity data on several of the specifies identified, but has also indicated the need to further assess the reactivity of MEK, isopropyl alcohol, other alcohols, and esters found in solvent-borne coatings. Subsequently, the 1998 CARB survey included a section to obtain specification profiles from coating manufacturers. This updated species profile is an important first step in focusing the attention of researchers in assessing overall reactivity and its contribution to ozone formation. The information in the original survey questionnaire will be used to study whether or not additional flexibility can be built into regulations based on the reactivity of the ingredients.

In spite of the studies identified above, reactivity data for VOCs, especially those compounds used to formulate consumer and commercial products, are extremely limited. This is essentially the conclusion reached by EPA in a report to Congress which states, "better data, which can be obtained only at great expense, is needed if the EPA is to consider relative photochemical reactivity in any VOC control strategy." (USEPA, 1995). Current studies are underway with more work being planned for the future with respect to assigning reactivity numbers for various key chemical compounds found in coatings.

With respect to water-borne reformulated coatings, some members of the architectural coating industry also concurs with the SCAQMD's technical assessment that reactivity will not significantly affect the reaction of total VOC reductions on reducing ozone formation in the Basin. At a 1991 joint SCAQMD/CARB Conference on Reactivity-Based Hydrocarbon Controls: Scientific Issues and Potential Regulatory Applications, a paper was presented by coating industry representatives entitled, *"Application of Reactivity Criteria to Architectural Coatings."* This paper asserts that "...approximately 68% of the volume of architectural coatings made and used in California are waterborne flat coatings and waterborne primers, sealers, and undercoaters, with a weighted average VOC content of 80 g/L. This is so much lower than the VOC content of the solvent-borne flat coatings replaced...that reactivity is probably not a significant issue with regard to these coatings."

To address the issue of reactivity of VOCs, staff is currently participating in CARB's Reactivity Research Advisory Committee, which is monitoring the progress of the North American Research Strategy for Tropospheric Ozone with regard to evaluating research studies on reactivity conducted at the national level. In addition to the SCAQMD's participation in the aforementioned studies, Dr. Carter has been retained by CARB to carry out an experimental and computer modeling study to investigate the atmospheric ozone formation potential of selected VOCs emitted from consumer products and industrial sources.

Although the science of VOC reactivity has matured over the past few years, more comprehensive studies are still being conducted to resolve the uncertainties of reactivity data. The experts in the field, including Dr. Carter, have indicated the need to improve estimates of atmospheric ozone reactivity factors for selected major classes of compounds in the consumer product emissions inventory. They also feel the need to improve the quantification of the uncertainty ranges of atmospheric reactivity factors for the classes of species typically found in coatings. In the near future, with funding from USEPA and private sources, a new, state-of-the-art ozone chamber will be developed and used for future studies. It was agreed at a March 1, 2001 CARB meeting that first two compounds to be modeled in the ozone chamber would be texanol ester alcohol and mineral spirits because they were at the top of the usage list from CARB's surveys. Furthermore, the architectural coatings industry is funding additional studies to further understand the mechanistic and kinetic reactivities of different VOC species. The results of all the aforementioned research and studies will be invaluable in determining the extent to which a reactivity based approach can be relied on for regulating VOC emissions from the application of coatings and the use of solvents.

Until the results of this research and studies are completed and peer reviewed, the SCAQMD believes that it would not be prudent to implement a reactivity-based ozone reduction strategy based on incomplete science. Therefore, the SCAQMD will continue to monitor and participate in all studies related to enhanced reactivity data for VOC species, including directly participating in studies pertaining to reactivity of solvents in architectural coatings.

CONCLUSION: In the absence of actual reactivity numbers for the compounds contained in "traditional" solvent formulations and compliant, low-VOC coatings, emissions must be calculated in the standard manner of total VOC per unit of coating applied manner. Based upon the current state of knowledge regarding VOC reactivity, it is speculative to conclude that the proposed amendments will generate significant adverse air quality impacts due to increased reactivity.

On June 16, 1995, the USEPA determined that acetone, PCBTF, VMS as well as other solvents have low photochemical reactivity and should be exempted from consideration as a VOC. The AQMD subsequently amended Rule 102 on November 17, 1995, to add acetone and other solvents to the definition of Group I exempt compounds, which are non-VOC by definition.

Oxsol 100 (p-chlorobenzotriflouride, PCBTF), manufactured by Occidental Chemical Corporation, was also delisted as a VOC in 1995. This solvent can be used to extend or replace many organic solvents, including toluene, xylene, mineral spirits, acetone, methyl ethyl ketone, trichloroethylene, and perchloroethylene. Toxicity data of PCBTF was assessed by OEHHA and it was not considered to have a significant toxic risk. This product is less toxic than toluene, is not considered a Hazardous Air Pollutant or an Ozone-Depleting Substance. The USEPA is also in the process of delisting t-butyl acetate, which may also help coating formulators in utilizing exempt solvents in their formulations.

Synergistic Effects of the Eight Issues

Coatings manufacturers have also alleged that not only should each of the eight issues (e.g., more thickness, illegal thinning, more priming, more topcoats, more touch-up and repair, more frequent recoating, more substitution, and more reactivity) be analyzed separately but that the synergetic effect of all issues be analyzed. As discussed above, the SCAQMD's research and analysis of resin manufacturers' and coating formulators' product information sheets concludes that on each separate issue that the low-VOC compliant coatings have comparable performance as current coatings or industry's specific assertions are unfounded. Therefore, since individually each issue does not result in a significant adverse air quality impact, the synergistic effect of all eight issues will not result in significant adverse air quality impacts. Even if it is assumed that some of the alleged activities do occur, e.g., illegal thinning, substitution, etc., the net overall effect of the proposed amendments is expected to be a reduction in VOC emissions.

Low Vapor Pressure

While not argued as one of the alleged eight issues discussed previously, coatings manufacturers have asserted that coating solvents should not be regulated as a VOC at all. These solvents currently used in consumer products and architectural coatings are considered low volatility compounds, meaning that they have a vapor pressure of less than 0.1 millimeter of mercury (mm of Hg) at 20 degrees Celsius. While CARB has included a low vapor pressure (LVP) exemption in its Consumer Products regulation, its staff indicate that the LVP exemption was placed into the proposed rule for some additives found in consumer products, such as surfactants, paraffin, and other heavier compounds that do not readily evaporate into the atmosphere and are typically washed away into the sewer. Since the VOCs in paints do and are intended to evaporate into the atmosphere, CARB does not support the LVP exemption for architectural coatings and did not include the LVP exemption into its Aerosol Coatings rule. USEPA staff also does not support an LVP exemption for the architectural coatings rule and did not include such an exemption in the National Architectural Coatings Rule. Based upon its test methodology, USEPA concludes that VOCs from architectural coatings do evaporate into the air and therefore should not be exempted. The SCAQMD concurs with USEPA and CARB decisions to not include a LVP exemption for architectural coatings. Nevertheless, the SCAQMD will continue to work with CARB staff in identifying issues, participating in future studies, and monitoring the result of any studies.

NTS Study

A study by the National Technical System (NTS) was initiated to assess application and durability characteristics of zero-VOC, low-VOC, and high-VOC coatings in order to supplement information collected by the SCAQMD, as part of a technology assessment. The laboratory testing of the NTS study is complete, and the Preliminary Test Data/Project Status Report #3 was released April 5, 1999.

The results from the NTS study are consistent with SCAQMD's own technology assessment. The results of the study show that zero-VOC coatings available today, when compared to high-VOC coatings are equal, and in some cases, superior in performance characteristics, including coverage, mar resistance, adhesion, abrasion resistance, and corrosion protection. However, the NTS results also highlight application characteristics of some zero-VOC nonflat and PSU coatings that are somewhat limited when compared to solvent-based, high-VOC coatings. Those include lower rankings for leveling, sagging and brushing properties. However, for IM coatings, zero and low-VOC coatings performed better than high-VOC coatings. In addition to the laboratory results, the NTS study was expanded with additional testing, including accelerated actual exposure, real time actual exposure, and actual field application characteristics. In sum, the results of the NTS study indicates that for the final VOC content limits, some, but not all of the zero-VOC coatings may have some application characteristics. As a result, the when originally adopted by SCAQMD, the 1999 amendments to Rule 1113 gave coating formulators seven years to reformulate their coatings to comply with the final VOC content limits and correct coating application problems. This time period is consistent with input received from resin manufacturers and coating formulators that it takes five to seven years to reformulate coatings to make them commercially available based on existing and emerging resin technologies.

PAR 1113 contains a technology assessment provision whereby approximately prior to the interim and final compliance dates the SCAQMD will perform a technology assessment of the availability of compliant nonflats; primers, sealers, and undercoaters; quick-dry primers, sealers, and undercoaters; quick-dry enamels; waterproofing wood sealers; stains; floor; rust preventative; and industrial maintenance coatings as specified in paragraph (c)(2) by July 1, 2001 and July 1, 2005. If compliant coatings are unavailable by the completion of the technology assessment to meet the final limit, the SCAQMD will report back to the Governing Board as to the appropriateness of maintaining the existing VOC content limits. The SCAQMD plans to utilize the on-going testing results from the NTS study for future technology assessments.

In support of the technology assessment requirements, the District has completed the Phase II Assessment Study discussed above. Furthermore, in a continuing effort to compare low and high-VOC coatings in order to further substantiate that available products have characteristics similar to user expectations of higher VOC based products, the District also initiated a contract to study various coatings with KTA-Tator, Inc. The selection of the contractors, the protocol for conducting the study and the coatings evaluated, resulted from discussions and a consensus between the District and the TAC.

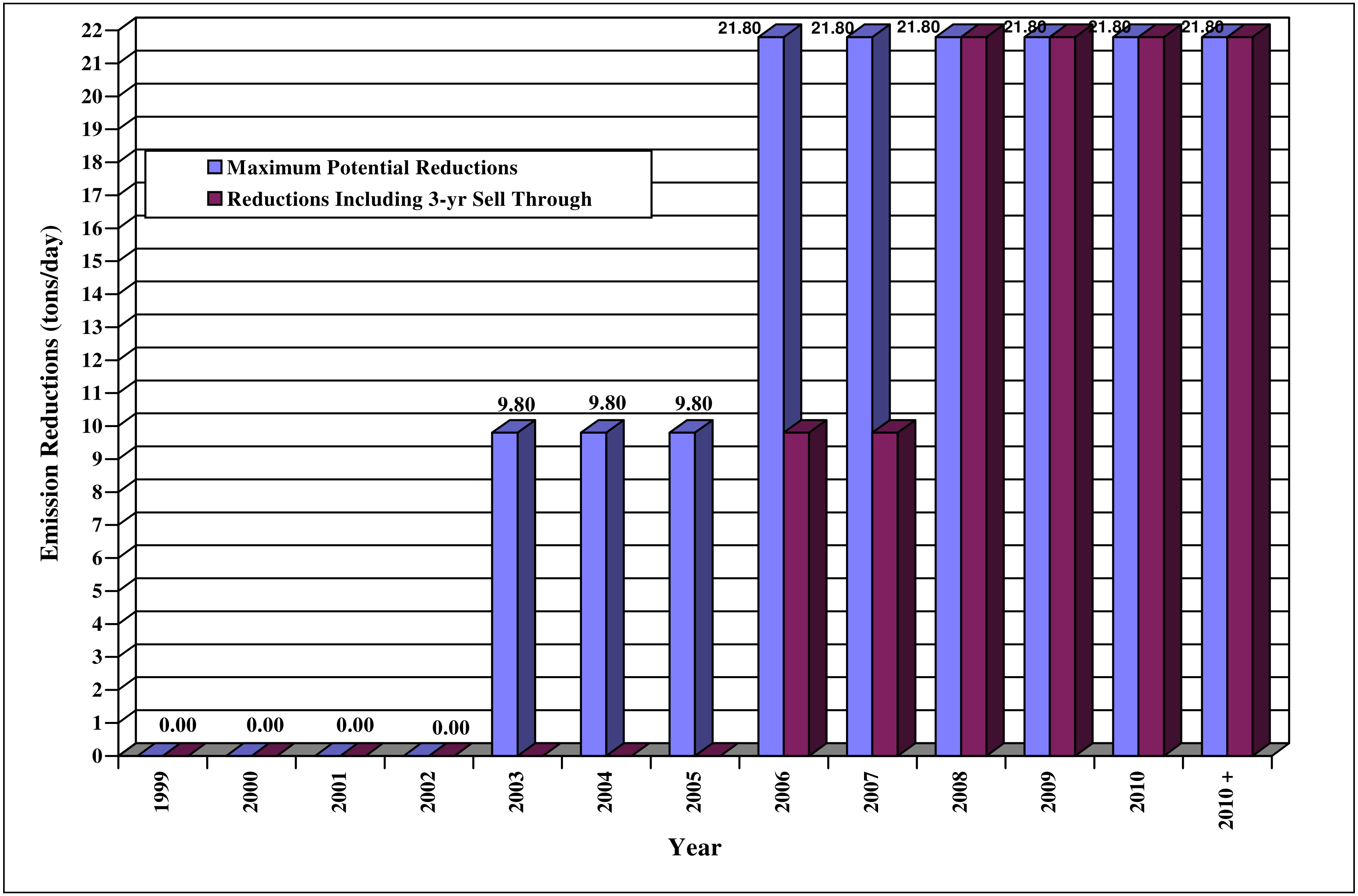
This most recent assessment compared high-, low- and zero-VOC formulations for four architectural coating categories: floor coatings, non-flat interior and exterior high gloss paints, interior and exterior primers, sealers and undercoaters and interior stains. The characteristics and performance of 31 coatings on various substrates were studied in the evaluation. Complete test results are shown in Appendix B1 of this report. Staff believes that overall, the results continue to substantiate current and future limits stated in the rule. Low-VOC products are currently available and, in all categories tested, work as well as and in some cases better than the higher-VOC counterparts. It is important to recognize that this study tested only a small portion of the low-VOC products currently available at retail and commercial outlets. While the test results do vary for some of the low-VOC products, all are currently being sold in the market, indicating acceptance by the consumer. The TAC and the District are continuing to discuss the findings of the study.

Overall Conclusion

Based on the preceding analysis of potential air quality impacts from implementing PAR 1113, it is concluded that the overall air quality effects of the PAR 1113 will be a VOC emission reduction of approximately 21.8 tons per day by the year 2010. The interim emission reduction is approximately 9.8 tons per day, including the ~~allowance of a higher interim VOC limit for essential public service coating and~~ extended compliance date for small businesses. Figure 4-1 illustrates the overall VOC emission reductions with and without the sell through provision associated with the implementation of PAR 1113.

To aid coating manufacturers in complying with the interim and final VOC continent limits, the SCAQMD has expanded the averaging provision of the current rule to cover PAR 1113 affected coating categories. In the 1996 amendments, SCAQMD staff included an "Averaging Provision" for flat coatings to provide an optional method of compliance for manufacturers of flat coatings. PAR 1113 will expand the provision and allow averaging for flats, nonflats; quick-dry enamels: IM coatings; PSU; quick-dry PSU; rust preventative coatings; and floor coatings. Effective January 1, 2001, this provision will allow manufacturers to average, on a sales-weighted basis, the VOC contents of all these coatings, and allow them to manufacture and distribute coatings that have a VOC content higher than the proposed standards. Market-based approaches have been requested by industry as an option to compliance with the standards. The overall averaging program parallels the CARB's Alternative Control Plan Regulation for Consumer Products.

FIGURE 4-1
OVERALL VOC EMISSION REDUCTIONS FROM PAR 1113



The Averaging Provision is a voluntary, flexible approach that will utilize a "bubble" concept. Under this program, manufacturers who voluntarily choose to comply with the rule under the averaging provision would select the coatings and formulate a detailed program which would demonstrate that the total actual VOC emissions under the program would not exceed the allowable emissions that would have resulted had the products been formulated to meet the VOC content limits. Once the program is approved, the manufacturers could sell products that exceed the VOC content limits specified in the rule for specific coating categories, provided that the emissions from these high-VOC products will be sufficiently offset by emissions from other coating products formulated to achieve VOC limits, below the proposed VOC content limits.

The following benefits of averaging have been noted by other similar programs, and are also appropriate under this proposal:

- Higher degree of compliance flexibility
- Equivalent emission reductions by utilizing market forces
- Lower the manufacturers' overall cost of reducing VOC emissions from categories included in the provision

PROJECT SPECIFIC MITIGATION MEASURES: None required.

REMAINING IMPACTS: Since PAR 1113 will result in an overall long-term air quality benefit (e.g., VOC reductions), no adverse impacts remain.

CUMULATIVE IMPACTS: Potential VOC emission increase of 0.08 tons per day (162 pounds per day) may result from the July 2001 amendments to PAR 1113, which delayed compliance to lower VOC content limits for clear brushing lacquers. However, the May 1996 amendments projected VOC emission reductions of 5.7 tons (11,400 pounds) per day by year 2002 and 10.6 tons per day by full implementation of the amendments by year 2008. The VOC increase from the July 2001 amendments will not result in a significant adverse cumulative impact because the 1996 amendments will provide an overall air quality benefit.

Cumulative air quality impacts from the proposed amendments, previous amendments and all other AQMP control measures considered together are not expected to be significant because implementation of all AQMP control measures is expected to result in net emission reductions and overall air quality improvement. This determination is consistent with the conclusion in the 1997 AQMP EIR that cumulative air quality impacts from all AQMP control measures are not expected to be significant (SCAQMD, 1997). Indeed, air quality modeling performed for the 1997 AQMP indicated that the Basin would achieve all federal ambient air quality standards by the year 2010 (SCAQMD, 1997). Future VOC control measures will assist in achieving the goal of ozone attainment by 2010.

Based on regional modeling analyses performed for both the 1994 and 1997 AQMPs, implementing control measures contained in the 1994 and 1997 AQMPs, in addition to the air quality benefits of the existing rules, is anticipated to bring the district into attainment with all national and most state ambient air quality standards by the year 2010. Therefore, there will be no cumulative adverse air quality impacts from implementing PAR 1113.

There are no provisions of PAR 1113 that result in either project-specific or cumulative air quality impacts. Since the proposed project is not expected to create significant adverse project-specific air quality impacts, the proposed project's contribution to significant adverse cumulative energy impacts are less than cumulatively considerable (CEQA Guidelines §15130(a)(3) and, therefore, are not significant.

CUMULATIVE IMPACT MITIGATION: No cumulative impact mitigation measures are required

WATER RESOURCES

In the NOP/IS, originally circulated prior to the adoption of the 1999 amendments to Rule 1113, the SCAQMD identified as a possible issue water resources impacts that could occur as a result of implementing PAR 1113. Specifically, PAR 1113 may result in additional water demand from the manufacturing and clean up of complaint water-borne coatings as well as the potential additional generation of wastewater that could be disposed of into storm drains and sanitary sewers.

Significance Criteria

The project will be considered to have significant adverse water demand impacts if any one of the following criteria is met by the project:

- The project increases demand for water by more than 5,000,000 gallons per day.
- The project requires construction of new water conveyance infrastructure.

The project will be considered to have significant adverse water quality impacts if any one of the following criteria is met by the project:

- The project creates a substantial increase in mass inflow of effluents to public wastewater treatment facilities.
- The project results in a substantial degradation of surface water or groundwater quality.

- The project results in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.
- The project results in alterations to the course or flow of floodwaters.

Water Demand Impacts

PROJECT SPECIFIC IMPACTS: Potential water demand impacts that could occur if compliant coatings are reformulated with water.

ANALYSIS: To analyze these impacts, the SCAQMD has projected what the water demand impacts would be as a result of using water to manufacture and to clean-up water-borne coatings. As a "worst-case," staff assumed that all affected coating categories associated with PAR 1113 would eventually be reformulated with water-borne technology. Staff also assumed for this "worst-case" analysis that all coatings that were and will be sold for use in the SCAQMD's jurisdiction were manufactured in the district. Additionally, staff assumed that water instead of solvent-borne clean-up material would be used to clean-up coating equipment. Thus, more water will be used in conjunction with the clean-up practices associated with the use of compliant coating categories than is presently the practice. As shown in Table 4-5, water demand impacts associated with the manufacture and clean-up of water-borne formulations (included as a "worst-case"), currently and in the future, are anticipated to create a negligible incremental water demand impact and do not exceed the SCAQMD's significant threshold of 5,000,000 gallons per day.

CONCLUSION: As shown in Table 4-5, it is within the capacity of the local water suppliers to supply the small incremental increase in water demand associated with the implementation of PAR 1113. Therefore, no significant water demand impacts are expected as the result of implementing PAR 1113.

While it is not possible to predict water shortages in the future, existing entitlements and resources in the district provide sufficient water supplies that currently exceed demand. Further, according to the Metropolitan Water District (MWD), the largest supplier of water to California, "For its part, Metropolitan expects to be able to meet 100 percent of its member agencies' water needs for the next ten years, even during times of critical drought. Metropolitan and its member agencies have identified and are implementing programs and projects to assure continued reliable water supplies for at least the next 20 years."[9] MWD is expected to continue providing a reliable water supply through developing a portfolio of diversified water sources that includes: cooperative conservation; water recycling; and groundwater storage, recovery, and replenishment programs. Other additional water supplies will be supplied in the future as a result of water transfer from other water agencies, desalination projects and state and federal water initiatives, such as CALFED and California's Colorado River Water Use Plan.

[9] From Metropolitan Water District, Annual Progress Report to the California's State Legislature, February 2002.

It should be noted, however, that the MWD and other water providers are currently exploring various strategies for increasing water supplies and maximizing the use of existing supplies. Options include storage of water from existing sources, use or storage of water unused by other states or agricultural agencies, and advance delivery of water to irrigation districts. In an article titled "Water Exchanges Help State Through Dry Years," in the Los Angeles Times (Thursday, April 4, 2002, California Section, page B1) describes the water market created by the Department of Water Resources (DWR) in 1991 when the pressure on water projects increased when the drought struck. The DWR set up a 'drought water bank,' which is a water market with the state playing broker and setting prices, purchasing water from farmers who would sell their water to the state instead of growing a crop for a year. "Last year, a dry year, the DWR again purchased some water for the farms and cities it serves through the State Water Project. Even more water was purchased by DWR on behalf of endangered fish through an experimental $57-million program. Several other water transfers were negotiated one-on-one between water districts." According to Tim Quinn, a MWD vice president, "water transfers have helped restore reliability for Southern California." Further, according to the article, "the (water) sales amount to a near record, and even more water will be bought and sold in coming years as the state struggles to accommodate its vital agriculture industry and its growing population." These continuing and future water management programs help to assure that the area's full-service water demands will be met at all times.

The SCAQMD will conduct a technical assessment prior to each of the rule limit requirements to determine where the technology is at that time and what, if any, environmental issues are associated with the manufacture and use of such reformulated products.

PROJECT-SPECIFIC MITIGATION: None required.

REMAINING IMPACTS: None.

CUMULATIVE IMPACTS: The cumulative impacts of PAR 1113 have been fully evaluated in the Final 1997 AQMP Program EIR, which is incorporated by reference. The 1997 AQMP Final Program EIR concluded that the implementation of all control measures, including CM #97CTS-07, would not create cumulatively significant adverse water demand impacts. Additionally, the 1997 AQMP Final Program EIR found that the implementation of certain mitigation measures would further reduce the incremental impacts associated with the adoption of control measures, which are incorporated herein by reference.

There are no provisions of PAR 1113 that result in either project-specific or cumulative water demand impacts. Since the proposed project is not expected to create significant adverse project-specific water demand impacts, the proposed project's contribution to significant adverse cumulative energy impacts are less than cumulatively considerable (CEQA Guidelines §15130(a)(3) and, therefore, are not significant.

CUMULATIVE IMPACT MITIGATION: None required.

TABLE 4-5

Historical and Projected Water Demand for Reformulated Coatings

Year	Projected Population[a] (millions of people)	Projected Water Demand[b] (bgy)	Projected Water Supply[c] (bgy)	Projected Coating Sales[d] (mgy)	Projected Mfgr Demand[e] (mgy)	Projected Cleanup Demand[f] (mgy)	PAR 1113 Total Demand[g] (mgy)	Total Impacts[h] (% Increase)	Total Impacts[i] (mgd))
1996	14.42	1,108.40	1,266.97	17.56	0.00	0.00	0.00	0.000000	0.00
1997	14.71	1,129.36	1,266.97	18.96	0.00	0.00	0.00	0.000000	0.00
1998	15.00	1,150.32	1,266.97	20.48	0.00	0.00	0.00	0.000000	0.00
1999	15.29	1,171.28	1,266.97	22.12	0.00	0.00	0.00	0.000000	0.00
2000	15.58	1,192.24	1,266.97	23.89	0.00	0.00	0.00	0.000000	0.00
2001	15.88	1,213.20	1,266.97	25.80	0.00	0.00	0.00	0.000000	0.00
2002	16.17	1,234.16	1,266.97	27.87	27.87	27.87	55.73	0.004399	0.15
2003	16.46	1,255.12	1,266.97	30.09	30.09	30.09	60.19	0.004751	0.16
2004	16.75	1,276.08	1,266.97	32.50	32.50	32.50	65.00	0.005131	0.18
2005	17.04	1,297.04	1,526.97	35.10	35.10	35.10	70.21	0.004598	0.19
2006	17.34	1,318.00	1,526.97	37.91	37.91	37.91	75.82	0.004965	0.21
2007	17.63	1,338.96	1,526.97	40.94	40.94	40.94	81.89	0.005363	0.22
2008	17.92	1,359.92	1,526.97	44.22	44.22	44.22	88.44	0.005792	0.24
2009	18.21	1,380.88	1,526.97	47.76	47.76	47.76	95.51	0.006255	0.26
2010	18.50	1,401.80	1,526.97	51.58	51.58	51.58	103.15	0.006755	0.28

[a] Population projections obtained from SCAG's 1998 RTP.

[b] Water demand and supply projections obtained from MWD Web Page. MWD Fact Sheet, http://www.mwd.dst.ca.us/docs/fctsheet.htm. As a "worst-case" all of MWD's service area water demand is included.

[c] Assumes MWD provides 60% of water supply in the SCAQMD's jurisdiction. The remaining 40% is provided by other water districts or municipalities. MWD 1996 baseline figure obtained from MWD's Fact Sheet. Includes 1.3 million acre-feet per year (AF/yr) from the Colorado River, 784,000 AF/yr from State Water Project, 244,412 AF/yr for Reservoirs, 178,000 AF from recycling programs, 30,000 from water reclamation, and the construction of a 797,546 AF reservoir by 2005. AF (acre- feet) equals approximately 326,000 gallons

[d] The Draft 1998 CARB Survey sales data is used as the baseline for 1996. It is assumed that 45% of the total 1996 sales occurred in the district. It is projected that coating sales will increase by 8% (1% from individuals and 7% from contractors) per year. Reference The Coatings Agenda America 1995/1996 articles entitled "Demand Led by Do-It-Yourselfers" and "Holding on in the Face of a Blizzard."

[e] Assumes that one gallon of water will be used to manufacture one gallon of coating applied. Also assumes as a "worst-case" scenario, that all coatings used in the SCAQMD's jurisdiction were manufactured here.

[f] Assumes that one gallon of water will be used to clean-up equipment for every gallon of coating applied. Also assumes as a "worst-case" scenario, that full conversion of affected coating categories to water-borne formulations occurs in 2002.

[g] Total amount of manufacturer and clean-up water demand.

[h] The percentage increase in water demand as a result of the incremental increase due to water clean-up of water-borne coating material.

[i] The incremental increase in daily water usage associated with the implementation PAR 1113.

Acronyms: bgy = billion gallons per year; mgy = millions of gallons per year; mgd = million gallons per day

Water Quality Impacts

Groundwater and Surface Water Impacts

PROJECT-SPECIFIC IMPACT: Based upon staff research of currently available compliant coatings, to comply with PAR 1113 VOC content limits, it is likely that resin manufacturers and coating formulators will replace conventional coating formulations, which may contain toluene, xylene, mineral spirits, acetone, methyl ethyl ketone (MEK), tricholorethylene, and percholoroethylene, with either exempt solvents (e.g., acetone, Oxsol 100, t-butyl acetate) or water-borne formulations. In addition to the above-mentioned solvents, coalescing solvents such as texanol, propylene glycol, and ethylene glycol may be used more widely in low-VOC water-borne formulations as alternatives to more toxic coalescing solvents such as ethylene glycol monobutyl ether (EGBE), ethylene glycol monoethyl ether (EGEE), ethylene glycol monomethyl ether (EGME), and their acetates. Furthermore, diisocyanates (e.g., hexamethylene diisocyanate (HDI), methylene bisphenyl diisocyanate (MDI), and toluene diisocyanate (TDI)) may be used more widely in low-VOC two component, water-borne IM systems as activators to their higher-VOC solvent-borne counterparts.

Some commentators contend that with the increased use of water-borne technologies to meet the interim and final VOC content limits, there will be a greater trend of coating applicators to improperly dispose of the waste generated from these coatings into the ground, storm drains, or sewer systems. However, there is no data to support this contention. In any event, there are several reasons why there should be no significant increase over current practices for improper disposal due to greater use of water-borne coatings.

ANALYSIS: As part of the 1996 Rule 1113 amendments, SCAQMD staff conducted over 60 unannounced site visits at industrial parks and new housing construction sites in an effort to evaluate coating and cleanup practices. During these site visits, SCAQMD staff surveyed contractors regarding their thinning practices, coating application techniques, and clean-up practices. Out of 32 responses received from the contractors on their clean-up practices, seven (22 percent) indicated that they dumped their waste material into the ground, 18 (56 percent) indicated that they used a disposal company to handle waste material, and seven (22 percent) indicated that they recycled their waste material as thinner. This survey demonstrates that a majority of the contractors either dispose of the waste material properly as required by the coating manufacturer's MSDS or recycle the waste material regardless of type of coating. Based upon these results, there is no reason to expect that paint contractors will change their disposal practices, especially those that dispose of wastes properly, with the implementation of PAR 1113.

Furthermore, based on discussions with resin manufacturers and coating formulators, the trend in coating technologies is to replace toxic/hazardous solvents (e.g., EGBEs) with less toxic/hazardous solvents (e.g., texanol, ethylene glycol, and propylene glycol). Staff has verified this trend by reviewing product data sheets and MSDSs for currently available compliant low-VOC coatings. Additionally, a draft December 1995 report entitled "Improvement of Speciation Profiles for Architectural and Industrial Coating Operations" prepared by Dr. Albert C. Censullo for CARB indicates that a majority of current water based formulations (flats and non-flats) already contain less hazardous solvents.

The Censullo report, which is intended to upgrade the species profiles for a number of sources within the general categories of industrial and architectural coating operations, reported that the four most common solvents in the 52 randomly chosen water-borne coatings (flats and non-flats) were: texanol (found in 37/52); propylene glycol (31/52); diethylene glycol butyl ether (23/52); and ethylene glycol (14/52). It appears from this information that the use of solvents such as texanol and propylene glycol in water-borne coating formulations, is prevalent today and should continue into the future with the eventual replacement of more toxic and hazardous coalescing solvents such as EGBEs with less or nontoxic coalescing solvents.

Even if some of the nonflat complaint coatings were disposed of into the ground, storm drains, or sewer system, EPA would not consider it a hazardous waste. A research report released in March of 1997 demonstrated that latex (nonflat technology) paint is, in fact, not a hazardous waste product. The study, conducted by DynCorp Environmental Health and Safety Services of Reston, Virginia, included an independent laboratory analysis of 16 representative consumer latex paint samples. The results of this analysis demonstrate that these latex paint products would not be considered a "hazardous waste," according to procedures and protocols listed in Environmental Protection Agency (EPA) documentation, specifically 40 CFR, Subpart 261 20-24.

In the context of IM coatings, the SCAQMD research reveals that compliant low-VOC, two-component IM coating systems containing diisocyanate compounds (toluene diisocyanate (TDI), hexamethylene diisocyanate (HDI), or methylene bisphenyl diisocyanate (MDI)) will be used to meet the interim and final VOC content limits. Exposure to diisocyanates can cause allergic reactions (primarily asthmatic) in sensitive individuals. It is likely that the compliant water-borne two component systems may replace higher-VOC solvent-borne one component IM systems. These water-borne compliant formulations are intended as direct replacements for their higher-VOC solvent-borne two component counterparts currently being applied. However, users of these compliant coating systems are business (e.g., painting contractors) that are more sophisticated and experienced than the average consumer in the proper disposal methods and applicable disposal requirements. Furthermore, after these coatings are mixed and exceed their pot life, they become a solid mass and are disposable as solid waste rather than wastewater. Thus, it is unlikely that these users will improperly dispose of these compliant coating systems resulting in an adverse water quality impacts

It should be noted that the National Paints and Coatings Association's "Protocol for Management of Post Consumer Paint," and the SCAQMD's "Painter's Guide to Clean Air" provide the public and painting contractors with information as to the environmentally sound coating disposal practices. These public outreach programs are expected to reduce the amount of coating waste material entering the sewer systems, storm drainage systems, and being dumped on the ground. Therefore, further reducing any water quality impacts associated with the improper disposal of complaint coatings.

CONCLUSION: Thus, significant ground water and surface water quality impacts are not expected from the use of texanol, propylene glycol, and ethylene glycol as coalescing solvents in compliant water-borne coatings. Furthermore, the potential for significant adverse groundwater and surface water quality impacts from compliant IM coatings containing diisocyanates is considered unlikely since users will properly dispose of any waste generated from application of these coatings.

Water Quality Impacts to Publicly Owned Treatment Works (POTWs)

PROJECT-SPECIFIC IMPACT: As already noted, it is anticipated that future compliant AIM coatings will be formulated with water-borne technologies. As a result, more water will be used for clean-up and the resultant wastewater material could be disposed of into the public sewer system. Thus, the increased usage of water-borne compliant coatings could adversely affect local POTWs' ability to handle the projected incremental increase in waste material.

ANALYSIS: To evaluate the amount of wastewater projected to be generated, it is anticipated that current coating equipment (i.e., spray guns, rollers, and brushes) clean-up practices of using water will continue into the future. Table 4-6 illustrates the "worst-case" potential increase of waste material likely to be received by POTWs in the district as a result of implementing PAR 1113.

The results of the analysis illustrated in Table 4-6 are considered to be a "worst-case" analysis that considerably overestimate potential wastewater impacts from implementing PAR 1113. For example, the EPA in its Report to Congress entitled "Study of Volatile Organic Compound Emissions from Consumer and Commercial Products" evaluated consumer products to determine which categories were likely to be disposed of to POTWs. The study found that the likelihood of paints, primers, and varnishes being disposed of to POTWs was low. Therefore, this category was not even evaluated for its VOC emission impacts on POTWs. This suggests that the presence of solvents from this category of consumer products in wastewater streams is very low compared to the total volume of solvents being disposed of from other consumer product categories.

In addition, as discussed earlier, water-borne coatings are increasingly becoming less toxic than current coatings. To that extent, it is likely that adverse impacts to water quality will actually decrease as compared to the existing situation.

TABLE 4-6

Historical and Projected POTW Impact From Reformulated Coatings

Year	POTW Average Daily Flow[a] (mgd)[e]	POTW Capacity[b] (mgd)	Coatings Disposal Daily Flow[c] (mgd)	Total Impacts[d] (% Increase)
1996	1671.00	2005.20	0.0000	0.000000000
1997	1671.00	2005.20	0.0000	0.000000000
1998	1671.00	2005.20	0.0000	0.000000000
1999	1671.00	2005.20	0.0000	0.000000000
2000	1691.00	2029.20	0.0000	0.000000000
2001	1691.00	2029.20	0.0000	0.000000000
2002	1691.00	2029.20	0.0763	0.000003762
2003	1691.00	2029.20	0.0825	0.000004063
2004	1691.00	2029.20	0.0890	0.000004388
2005	1691.00	2029.20	0.0962	0.000004739
2006	1691.00	2029.20	0.1039	0.000005119
2007	1691.00	2029.20	0.1122	0.000005528
2008	1691.00	2029.20	0.1211	0.000005970
2009	1691.00	2029.20	0.1308	0.000006448
2010	1691.00	2029.20	0.1413	0.000006964

[a] 1990 total average daily wastewater flows handled by all POTWs in the district. Includes Eastern Municipal Water District tripling their capacity in 2000.
[b] Based on average daily flows of 80% of total POTW capacity. Does not include wet weather peak capacity.
[c] Assumes that one gallon of water will be used to clean-up equipment for every gallon of coating applied. Also assumes as a "worst-case" scenario, that full conversion of affected coating categories to water-borne formulations occurs in 2002. The figures for Coatings Disposal Flow expressed in mgy are converted to mgd by dividing by 365.
mgd = millions of gallons per day

CONCLUSION: The potential increase is considered to be well within the existing and projected capacity of POTWs in the district. Hence, wastewater impacts associated with the disposal of water-borne clean-up waste material generated from PAR 1113 affected coating categories are not considered significant. With the increasing trend toward less toxic water-borne, it is likely that there will be less adverse impacts to water quality.

Potential water quality impacts are expected to be further minimized through using the optional Averaging Provision. The Averaging Provision should help coating manufacturers comply with the proposed lower VOC limits by allowing them to manufacture and sell coatings at various VOC levels for a specific coating category assuming the category, as a whole, complies with a sales-weighted average VOC content equal to that in the rule. Since current solvents could continue to be used in the higher VOC coatings, the disposal practices associated with them would continue so no additional water quality impacts would be expected.

Overall Conclusion

Based upon the preceding analyses, PAR 1113 is not expected to create significant adverse water resource impacts for the following reasons. First, the current trend in coating technologies is to move away from using hazardous materials to using less or non-hazardous coating technologies. This trend may be the result of increasingly stringent state and federal regulations relative to hazardous materials, as well as the potential for increased liability associated with promoting or using hazardous materials. Second, experienced users are expected to properly dispose of waste generated from the use of compliant coatings. Third, public outreach programs are anticipated to further inform the public and painting contractors as to the proper disposal methods for compliant coatings. Lastly, based upon future projections, district POTWs are expected to be able to handle any incremental increase water-borne coating wastewater disposed of as part of clean-up practices associated with the use of compliant water-base coatings. As a result, water quality impacts will likely decrease over the current disposal practices.

PROJECT-SPECIFIC MITIGATION MEASURES: None required.

REMAINING IMPACTS: Since water quality impacts are not significant, no adverse impacts remain.

CUMULATIVE IMPACTS: The cumulative impacts were thoroughly analyzed in the 1997 AQMP Final Program EIR, which is herein incorporated by reference along with its adopted mitigation measures. In addition, due to the trend toward using less hazardous compounds in water-borne coatings, PAR 1113's contribution to the cumulative significant adverse water quality impacts (due primarily to Rules 1171 and 1122) found in the 1997 AQMP Final Program EIR will not be found to be cumulatively considerable and thus is not significant.

There are no provisions of PAR 1113 that result in either project-specific or cumulative water quality impacts. Since the proposed project is not expected to create significant adverse project-specific water quality impacts, the proposed project's contribution to significant adverse cumulative energy impacts are less than cumulatively considerable (CEQA Guidelines §15130(a)(3) and, therefore, are not significant.

CUMULATIVE IMPACT MITIGATION: None required.

PUBLIC SERVICES IMPACTS

In the NOP/IS, originally circulated prior to the adoption of the 1999 amendments to Rule 1113, the SCAQMD identified potential significant public services impacts that could occur as a result of implementing PAR 1113. Specifically, whether reformulated compliant coatings could lead to more demand for maintenance at public facilities because these coatings allegedly do not perform or hold-up as well as traditional solvent-borne coatings.

Additionally, based on comments received on the NOP/IS and at various public meetings the SCAQMD will also analyze other public services (e.g., fire department) impacts associated with the application of coatings reformulated with low-VOC solvents and exempt solvents (e.g., acetone).

Significance Criteria:

The project will be considered to have significant adverse public services impacts if any one of the following criteria is met by the project:

- The proposed project will result in the need for new or altered public facilities or services.

Additional Maintenance of Public Facilities

PROJECT-SPECIFIC IMPACTS: In the NOP/IS and in subsequent public forums, some commentators have asserted that because reformulated compliant coatings will not perform as well as current coatings public facility impacts will result from more frequent maintenance activities. In other words, because public facilities have limited budgets for painting activities, they will not be able to do more frequent touchups to maintain facility appearance, equipment, and in some instances safety.

ANALYSIS: As part of the analysis of PAR 1113, staff evaluated coating product information sheets and recent studies conducted for a large number of conventional coatings and currently available low-VOC coatings (see the tables in Appendix D, status reports in Appendix G, and Table 4-2). Extra touch-up and repair and more frequent coating applications are related to durability qualities of coatings. Generally, durability information is provided qualitative in the product information sheets rather than quantitatively, e.g., descriptions such as resistant or not resistant to high heat, chemicals, abrasion, etc.

~~Certain specialty IM coatings, such as protective coating used to paint specific components of power, municipal wastewater, water, bridges and other roadways for essential public services are not widely available and, therefore, allowed a slightly higher interim VOC content limit. However, the essential public service coating would be required to reach the original final compliance limit.~~

CONCLUSION: Based upon the qualitative durability descriptions in the coating product information sheets, staff concluded that low-VOC coatings have durability characteristics comparable to conventional coatings.

PROJECT-SPECIFIC MITIGATION MEASURES: No mitigation measures are required.

REMAINING IMPACTS: Since public service impacts are not significant, no adverse impacts remain.

CUMULATIVE IMPACTS: The cumulative impacts of PAR 1113 have been fully evaluated in the Final 1997 AQMP Program EIR, which is incorporated by reference. The 1997 AQMP Final Program EIR concluded that the implementation of all control measures, including CM #97CTS-07, would not create cumulatively significant adverse cumulative public service impacts.

There are no provisions of PAR 1113 that result in either project-specific or cumulative public services impacts. Since the proposed project is not expected to create significant adverse project-specific public services impacts, the proposed project's contribution to significant adverse cumulative energy impacts are less than cumulatively considerable (CEQA Guidelines §15130(a)(3) and, therefore, are not significant.

CUMULATIVE IMPACT MITIGATION: None required.

Fire Departments

PROJECT-SPECIFIC IMPACTS: Potential adverse impacts to fire departments could occur in two ways: 1) if there is an increase in accidental release of hazardous materials used in compliant coatings, fire departments would have to respond more frequently to accidental release incidences and 2) if there is an increase in the amount of hazardous materials stored at affected facilities, fire departments would have to conduct additional inspections. Table 4-7 compares the flammability characteristics of currently used solvents to replacement solvents that may be used to reformulate affected coatings to meet the PAR 1113 interim and final VOC content limits.

ANALYSIS: As illustrated in Table 4-7, the flammability classifications by the National Fire Protection Association (NFPA) are the same for acetone, t-butyl acetate, toluene, xylene, MEK, isopropanol, butyl acetate, and isobutyl alcohol. Recognizing that as a "worst-case" acetone has the lowest flashpoint, it still has the highest Lower Explosive Limit, which means that acetone vapors will not cause an explosion unless the vapor concentration exceeds 26,000 ppm.

In contrast, toluene vapors can cause an explosion at 13,000 ppm, which poses a much greater risk of explosion. The concentration of xylene vapors that could cause an explosion is even lower at 10,000 ppm. Under operating guidelines of working with flammable coatings under well-ventilated areas, as prescribed by the fire department codes, it would be difficult to achieve concentrated streams of such vapors.

Assuming as a "worst-case", although not likely, staff assumed that most affected PAR 1113 coating categories would be reformulated with acetone to meet the interim and final VOC content limits, it is anticipated that impacts to fire department would still be insignificant.

TABLE 4-7

Chemical Characteristics for Common Coating Solvents

Chemical Compounds	M.W.	Boiling Point (°F)	Flashpoint[a] (°F)	Vapor Pressure (mmHg @ 68 °F)	Lower Explosive Limit (% by Vol.)	Flammability Classification (NFPA)*
Traditional/Conventional Solvents						
Toluene	92	231	40	22	1.3	3
Xylene	106	292	90	7	1.1	3
MEK	72	175	21	70	2.0	3
Isopropanol	60	180	53	33	2.0	3
Butyl Acetate	116	260	72	10	1.7	3
Isobutyl Alcohol	74	226	82	9	1.2	3
Stoddard Solvent	144	302 - 324	140	2	0.8	2
Petroleum Distillates (Naptha)	100	314 - 387	105	40	1.0	4
EGBE	118	340	141	0.6	1.1	2
EGME	76	256	107	6	2.5	2
EGEE	90	275	120	4	1.8	2
Replacement Solvents						
Chemical Compounds	**M.W.**	**Boiling Point (°F)**	**Flashpoint[a] (°F)**	**Vapor Pressure (mmHg @ 68 °F)**	**Lower Explosive Limit (% by Vol.)**	**Flammability Classification (NFPA)***
Acetone	58	133	1.4	180	2.6	3
Di-Propylene Glycol	134	451	279	30	1	1
Propylene Glycol	76	370	210	0.1	2.6	1
Ethylene Glycol	227	388	232	0.06	3.2	1
texanol	216	471	248	0.1	0.62	1
Oxsol 100	181	282	109	5	0.90	1
t-Butyl Acetate	113	208	59		1.5	3
Hexamethylene Diisocyanate (HDI)	168	415	284	0.5	1	1
Methylene Bisphenyl Diisocyanate (MDI)	250	314	385	0.5	1	1
Toluene Diisocyanate (TDI)	174	200	270	0.04	1	1

*National Fire Protection Association
0 = minimal; 1 = slight; 2 = moderate; 3 = serious; 4 = severe

Chemistry classes at all levels from grade school to universities, as well as industrial laboratories, use acetone for wiping down counter tops and cleaning glassware. Additional uses for acetone include solvent for paint, varnish, lacquers, inks, adhesives, floor coatings, and cosmetic products including nail polish and nail polish remover.

Labels and MSDSs accompanying acetone-based products caution the user regarding acetone's flammability and advises the user to "keep the container away from heat, sparks, flame and all other sources of ignition. The vapors may cause flash fire or ignite explosively.

Use only with adequate ventilation." All of the large coating manufacturers currently offer pure acetone for sale in quart or gallon containers with similar warnings.

Interviews with four local fire departments during the 1996 amendments to Rule 1113 revealed that all four departments would be equally concerned with any coating or solvent, which has a flashpoint below 65 degrees Fahrenheit. Currently, several conventional coatings generally have flashpoints below 65 degrees Fahrenheit. Based on inquiries from the SCAQMD, Captain Michael R. Lee, of the Petroleum-Chemical Unit for the County of Los Angeles Fire Department, submitted a letter to the SCAQMD stating that the Uniform Fire Code (UFC) treats solvents such as acetone, butyl acetate, MEK, and xylene as Class I Flammable Liquids. Further, the UFC considers all of these solvents to present the same relative degree of fire hazard. The UFC also sets the same requirements for the storage, use and handling of all four solvents. Captain Lee goes on to state, "In my opinion, acetone presents the highest degree of fire hazard of the four solvents considered, but not significantly more hazardous than the others. All four should be used with extreme caution, with proper safeguards in place."

The County of Los Angeles, Fire Department, Fire Prevention Guide #9 regulates spray application of flammable or combustible liquids. The guide requires no open flame, spark-producing equipment or exposed surfaces exceeding the ignition temperature of the material being sprayed within the area. For open spraying, as would be the case for the field application of the acetone-based coatings, no spark-producing equipment or open flame shall be within 20 feet horizontally and 10 feet vertically of the spray area. Anyone not complying with the above guidelines would be in violation of current fire codes. The fire department limits residential storage of flammable liquids to five gallons and recommends storage in a cool place. If the flammable coating container will be exposed to direct sunlight or heat, storage in cool water is recommended. Finally all metal containers involving the transfer of five gallons or more should be grounded and bonded.

CONCLUSION: Based upon the above considerations, it is not expected that PAR 1113 will generate significant adverse impacts to local fire departments requiring new or additional fire fighting resources. Similarly, as noted in the "Hazards" section, any increase in accidental releases of compliant coating materials would be expected to result in a concurrent reduction in the number of accidental releases of existing coating materials. As a result, the net number of accidental releases would be expected to remain constant, allowing for population growth in the district. Additionally, as demonstrated in the "Human Health" section, future compliant coating materials are not expected to cause significant adverse human health impacts, so accidental release scenarios would be expected to pose a lower risk to responding firefighters. Furthermore, if manufactures continue to use solvents such as Texanol, propylene glycol, ethylene glycol, etc., in their compliant water-borne coatings, fire departments would not be expected to experience adverse impacts because in general these solvents are less flammable solvents as rated by the NFPA.

PROJECT-SPECIFIC MITIGATION MEASURES: None required.

REMAINING IMPACTS: Since public service impacts are not significant, no adverse impacts remain.

CUMULATIVE IMPACTS: The cumulative impacts of PAR 1113 have been fully evaluated in the Final 1997 AQMP Program EIR, which is incorporated by reference. The 1997 AQMP Final Program EIR concluded that the implementation of all control measures, including CM #97CTS-07, would not create cumulatively significant adverse cumulative public service impacts.

There are no provisions of PAR 1113 that result in either project-specific or cumulative public services impacts. Since the proposed project is not expected to create significant adverse project-specific public services impacts, the proposed project's contribution to significant adverse cumulative energy impacts are less than cumulatively considerable (CEQA Guidelines §15130(a)(3) and, therefore, are not significant.

CUMULATIVE IMPACT MITIGATION: None required.

TRANSPORTATION/CIRCULATION

The NOP/IS originally prepared for the 1999 amendments to Rule 1113 did not identify any potential significant adverse transportation/circulation impacts associated with the proposed project. Subsequent to making the NOP/IS available to the public, comments were received indicating that PAR 1113 could generate transportation/circulation impacts as described below.

Significance Criteria

The project will be considered to have significant adverse transportation/circulation impacts if any one of the following criteria are met by the project:

- The project results in the need for 350 or more new employees.
- The project will increase heavy-duty transport truck traffic to and/or from any one facility by more than 350 truck trips per day.
- The project will increase customer traffic by more than 700 trips per day.

Transportation / Circulation Effects

PROJECT-SPECIFIC IMPACTS: In the NOP/IS and in subsequent public forums, some commentators have asserted that transportation/circulation impacts will occur as a result of implementing PAR 1113 in part because the drying times of low-VOC coatings are longer than the drying times for conventional coatings. Commentators also asserted that low-VOC coatings require more surface preparation than conventional coatings. As a result, jobs will take more than one day to complete. Other transportation/circulation issues raised in response to the NOP/IS include the assertion that low-VOC coatings contain a higher solids content, with a lower average coverage area. As a result, more transport trips would be necessary to supply the additional volumes of coatings for a given job. Finally, comments received on the NOP/IS claimed that low-VOC coatings require more touch-up and repair, which means more trips to each job site.

ANALYSIS: It is assumed here that the biggest concern regarding drying time would be for primers, sealers, and undercoaters since, by definition, these require additional topcoats. As part of the analysis of PAR 1113, staff evaluated coating product data sheets (which typically include drying times) for a large number of conventional and low-VOC coatings (see the tables in Appendix D, status reports in Appendix G, and Table 4-2). The available information from product data sheets indicates that low-VOC primers, sealers, and undercoaters have a slightly shorter drying time, on average, than conventional coatings. On average, the drying time for low-VOC quick-dry primers, sealers, and undercoaters is comparable to the drying time for the same categories of conventional coatings. Finally, the drying time for low-VOC stains is substantially shorter than the drying time for conventional stains. Consequently, the assertion that low-VOC coatings have longer drying times that will require more trips over more days is not supported by coating product information sheets.

Regarding surface preparation, staff evaluated this characteristic as part of the evaluation of coating product data sheets mentioned above and recent studies conducted (see the tables in Appendix D, status reports in Appendix G, and Table 4-2). Where information or data are provided, the information indicated that low-VOC coatings do not require substantially different surface preparation than conventional coatings. As a result, the time necessary to prepare a surface for coating is approximately equivalent for conventional and low-VOC coatings.

The issue of topcoats is related to solids content and the amount of area a coating will cover. The review of coating product data sheets indicated that for industrial maintenance floor coatings, low-VOC coatings tended to have a higher solids content, with a comparable average coverage area than conventional coatings. For most other coating categories affected by PAR 1113, the solids content and area of coverage for low-VOC coatings was, on average, comparable to conventional coatings although some categories, e.g., quick-dry primers, sealers, and undercoaters and stains, had slightly less coverage than conventional coatings in these categories. As a result, since solids content and coverage area for low-VOC coatings are comparable to conventional coatings, it is not likely that additional trips will be necessary.

Extra touch-up and repair and more frequent coating applications are related to durability qualities of coatings. Staff reviewed coating product data sheets and recent studies were conducted (see the tables in Appendix D, status reports in Appendix G and Table 4-2) to obtain durability information for low-VOC coatings and conventional coatings. Generally, durability information is provided qualitative rather than quantitatively, e.g., descriptions such as resistant or not resistant to high heat, chemicals, abrasion, etc. Based upon the qualitative durability descriptions in the coating product information sheets, staff concluded that low-VOC coatings have durability characteristics comparable to conventional coatings.

Industry has also alleged that PAR 1113 will generate solid/hazardous waste impacts which in turn, will lead to increased traffic impacts due to compliant coatings having a shorter pot life, shorter shelf life, or lesser freeze-thaw capabilities compared to existing coatings.

The SCAQMD's evaluation of resin manufacturers' and coating formulators' product data sheets, as well as recent studies conducted (see the tables in Appendix D, status reports in Appendix G, and Table 4-2) which tend to confirm the assertion that low-VOC coatings have a shorter pot life and a shorter shelf life. Information on freeze-thaw characteristics was generally not available. However, significant adverse traffic impacts are not expected from the disposal of coatings "going bad" due to pot life, shelf life, or freeze-thaw problems. First, it is improbable that any one location (e.g., selling, distributing, or applying coatings) would have a sufficient volume of coatings going bad to generate an additional 350 heavy-duty truck trips per day as a result of pot life, shelf life, or freeze-thaw problems. Second, manufacturers of low-VOC resin technology indicate that the inclusion of surfactants will help eliminate freeze-thaw and shelf-life problems. Finally, when coating applicators become familiar with appropriate low-VOC application techniques, pot life problems will decrease significantly or be eliminated since the contractors will be able to more accurately estimate the correct amount of coating to be used per job.

CONCLUSION: Based upon staff research of coating product information sheets described in the preceding paragraphs, no significant adverse transportation impacts are anticipated from implementing PAR 1113.

PROJECT-SPECIFIC MITIGATION MEASURES: No mitigation measures are required.

CUMULATIVE IMPACTS: Analysis of project-specific transportation impacts indicated that PAR 1113 is not expected to generate any significant adverse cumulative transportation/circulation impacts. Further, implementing all 1997 AQMP control measures, rules and regulations is not anticipated to have any direct or indirect significant adverse cumulative transportation impacts. This conclusion is further validated by the fact that the initial study for the 1997 AQMP did not identify any transportation/circulation impacts associated with the 1997 AQMP.

There are no provisions of PAR 1113 that result in either project-specific or cumulative transportation impacts. Since the proposed project is not expected to create significant adverse project-specific transportation impacts, the proposed project's contribution to significant adverse cumulative energy impacts are less than cumulatively considerable (CEQA Guidelines §15130(a)(3) and, therefore, are not significant.

CUMULATIVE IMPACT MITIGATION: No cumulative impact mitigation measures are required.

SOLID/HAZARDOUS WASTE IMPACTS

The NOP/IS originally prepared for the 1999 amendments to Rule 1113 did not identify any potential significant adverse hazards impacts associated with the proposed project. Subsequent to making the NOP/IS available to the public, comments were received indicating that PAR 1113 could generate solid/hazardous waste impacts as described below.

Significance Criteria

The project will be considered to have significant adverse solid/hazardous waste impacts if the following criteria are met by the project:

- The generation and disposal of nonhazardous or hazardous wastes that exceed the capacity of designated landfills.

Solid/Hazardous Waste Impacts

PROJECT-SPECIFIC IMPACTS: Industry has alleged that the implementation of PAR 1113 will generate solid/hazardous waste impacts due to the following assertions:

- Compliant lower-VOC coatings targeted by PAR 1113 will not have the same freeze-thaw capabilities as existing coatings and, therefore, may go bad during transport from mild climates to extreme climates resulting in that load being discarded into a landfill.

- Compliant lower-VOC coatings targeted by PAR 1113 will have shorter shelf lives, and therefore a percentage of the manufacturer's inventory will have to be landfilled because the coatings have gone bad in the can over time.

- As a result of the lower-VOC content limits for IM and floor coatings, manufacturers will formulate more two components systems that may have, on the average, a shorter pot life compared to conventional coatings. As a result low-VOC coatings could solidify in the can during the application process, resulting in an unusable portion of coating that would need to be discarded into a landfill.

ANALYSIS: The SCAQMD's evaluation of coatings product data sheets and recent studies conducted (see the tables in Appendix D, status reports in Appendix G, and Table 4-2) tend to confirm the assertion that low-VOC coatings have a shorter pot life and a shorter shelf life. Information on freeze-thaw characteristics was generally not available. To estimate solid waste impacts associated with implementing PAR 1113, staff assumed as a "worst-case" that, starting in the year 2003 when the interim VOC content limits become effective, solid wastes would increase as follows: five percent of all coatings affected by PAR 1113 would be landfilled due to freeze–thaw; one percent of all affected coatings would be landfilled due to a shorter shelf-life; and 10 percent of all IM and floor coatings would be landfilled as a result of having a shorter pot life. According to the resin manufacturers, solidified coatings would not be considered a hazardous waste. Therefore, for this solid waste analysis, the SCAQMD also assumed that all the landfilled material would be considered non-hazardous waste.

Table 4-8 highlights the estimated nonhazardous material that may be landfilled if industry's assertions are accurate. Table 4-8 also shows whether the landfilling of nonhazardous material associated with the implementation of PAR 1113 will be considered significant.

TABLE 4-8

Anticipated Solid Waste Impacts Associated with Implementing PAR 1113[a]

Year	Landfill Capacity tons/day	Freeze-Thaw Disposal[b] tons/day	Shelf-Life Disposal[c] tons/day	Pot life Disposal[d] tons/day	Total Disposal tons/day	Total Impact % Capacity	Significant Yes/No
2002	111,198	21	4	3	28	0.03	No
2003	111,198	22	4	4	31	0.03	No
2004	111,198	24	5	4	33	0.03	No
2005	111,198	26	5	4	36	0.03	No
2006	111,198	28	6	5	38	0.03	No
2007	111,198	30	6	5	42	0.04	No
2008	111,198	33	7	5	45	0.04	No
2009	111,198	36	7	6	48	0.04	No
2010	111,198	38	8	6	52	0.05	No

[a] The Draft 1998 CARB Survey sales data is used as the baseline for 1996. It is assumed that 45 percent of the total 1996 sales occurred in the district. It is projected that coating sales will increase by 8 percent per year. To convert gallons to tons, the SCAQMD assumed that the coatings had an average density of 10.5 pounds per gallon.
[b] Assumed that five percent of all coatings affected by PAR 1113 coatings would be landfilled.
[c] Assumed that one percent of all coatings affected by PAR 1113 coatings would be landfilled.
[d] Assumed that 10 percent of IM and floor coatings affected by PAR 1113 coatings would be landfilled.

CONCLUSION: As shown in Table 4-8, even if some compliant coatings are landfilled due to freeze-thaw, shelf life, or pot life problems, the total amount of solid waste material deposited in district landfills will not create a significant solid waste impact. It should be noted that the above analysis overestimates the actual solid waste impacts associated with the implementation of PAR 1113 for several reasons. First it is not likely that coatings manufacturers will simply dispose of all coatings damaged due to the alleged freeze-thaw, shelf-life, and pot life problems. It may be possible that some of these coatings can be reused for various other purposes, such as painting over graffiti, etc. Second, discussions with manufacturers of low-VOC resin technology have indicated that the inclusion of surfactants will help eliminate freeze-thaw and shelf-life problems. Finally, when painting contractors become familiar with appropriate application techniques required for applying low-VOC two component IM systems, pot life problems will decrease significantly or be eliminated altogether since the contractors will be able to more accurately estimate the correct amount of coating to be mixed to minimize waste. It is expected that by the time the interim limits become effective, painting contractors will have learned the proper application techniques for the low-VOC two component IM systems. Therefore, the amount of pot-life disposal shown in Table 4-8 above should drop to negligible levels starting within a year after the interim limits become effective.

PROJECT-SPECIFIC MITIGATION MEASURES: No mitigation measures are required.

CUMULATIVE IMPACTS: The cumulative impacts of PAR 1113 have been fully evaluated in the Final 1997 AQMP Program EIR, which is incorporated by reference. The 1997 AQMP Final Program EIR concluded that the implementation of all control measures, including CM #97CTS-07, would not create cumulatively significant adverse cumulative solid/hazardous waste impacts.

There are no provisions of PAR 1113 that result in either project-specific or cumulative solid/hazardous waste impacts. Since the proposed project is not expected to create significant adverse project-specific solid/hazardous waste impacts, the proposed project's contribution to significant adverse cumulative energy impacts are less than cumulatively considerable (CEQA Guidelines §15130(a)(3) and, therefore, are not significant.

CUMULATIVE IMPACT MITIGATION: No cumulative impact mitigation measures are required.

HAZARD IMPACTS

The NOP/IS originally prepared for the 1999 amendments to Rule 1113 did not identify any potential significant adverse hazards impacts associated with the proposed project. Subsequent to making the NOP/IS available to the public, comments were received indicating that PAR 1113 could generate hazards impacts as described below.

Significance Criteria

The project will be considered to have significant adverse hazards impacts if any one of the following criteria is met by the project:

- The project results in a substantial number of people being exposed to a substance causing irritation.

- The project results in one or more people being exposed to a substance causing serious injury or death.
- The project creates substantial human exposure to a hazardous chemical.

Hazard Impacts

PROJECT-SPECIFIC IMPACTS: Hazard impact concerns are related to the risk of fire, explosions, or the release of hazardous substances in the event of an accident or upset conditions. It is expected that the interim and final VOC content limits required by PAR 1113 may be achieved, in part, through the use of replacement solvents and predominantly water-borne technologies. For example, acetone, which is a flammable substance, may be used as a replacement solvent in some waterproofing sealer formulations. Overall, exempt solvents are considered to be viable alternatives to other, more toxic solvents currently found in various coatings.

Additionally, coalescing solvents such as texanol, propylene glycol, and ethylene glycol may be used more widely in low-VOC water-borne formulations as alternatives to more toxic coalescing solvents such as EGBE, EGEE, EGME, and their acetates. Furthermore, diisocyanates (e.g., hexamethylene diisocyanate (HDI), methylene bisphenyl diisocyanate (MDI), and toluene diisocyanate (TDI)) may be used more widely in low-VOC two component IM systems as activators.

To the extent that future compliant AIM coatings would be formulated with exempt solvents or other potentially hazardous materials, and to the extent that these materials could be accidentally released into the environment, PAR 1113 could create significant adverse hazard impacts.

ANALYSIS: As shown in Table 4-7 of the “Public Services” section, acetone is flammable and may result in increased risk of flammability/explosion or accidental releases of hazardous materials. Therefore, in the context of hazards impacts associated with the implementation of PAR 1113, the reformulation of coatings with acetone would constitute the “worst-case” hazards scenario.

As a result of being delisted as a VOC by the SCAQMD, acetone usage has been steadily increasing irrespective of amendments to Rule 1113. In any event, it is likely that for some AIM coating categories where acetone is already being used, e.g., waterproofing sealers, acetone usage is expected to increase. Any anticipated increase in acetone usage may increase the number of trucks or rail cars that transport acetone within the district although there would be a concurrent reduction in transport of currently used solvents. The safety characteristics of individual trucks or rail cars that transport acetone will not be affected by PAR 1113. The consequences (exposure effects) of an accidental release of acetone are directly proportional to the size of the individual transport trucks or rail cars and the release rate. Although the probability of an accidental release of acetone could increase, the severity of an incident involving acetone transport will not change as a result of the proposed amendments to Rule 1113. Similarly, the severity of an accident involving the storage of acetone is not expected to change from existing conditions.

As already noted in Table 4-7, the flammability classifications by the NFPA are the same for acetone, t-butyl acetate, toluene, xylene, MEK, isopropanol, butyl acetate, and isobutyl alcohol. Recognizing that as a "worst-case" acetone has the lowest flashpoint, it still has the highest Lower Explosive Limit, which means that acetone vapors will not cause an explosion unless the vapor concentration exceeds 26,000 ppm.

In contrast, toluene vapors can cause an explosion at 13,000 ppm, which poses a much greater risk of explosion. The concentration of xylene vapors that could cause an explosion is even lower at 10,000 ppm. Under operating guidelines of working with flammable coatings under well-ventilated areas, as prescribed by the fire department codes, it would be difficult to achieve concentrated streams of such vapors.

Furthermore, any increase in accidental releases of compliant acetone-based coatings would be expected to result in a concurrent reduction in the number of accidental releases of existing coating materials. As shown in Table 4-7 many of the solvents used in conventional solvents are as flammable as acetone, so there would be no net change or possibly a reduction in the hazard consequences from replacing some conventional solvents with acetone.

Although acetone is expected to be used to formulate some future compliant AIM coatings, current information from coating product information sheets (see the tables in Appendix D) indicates that acetone is only expected to be used in a limited amount of compliant coatings (e.g., floor coatings). The majority of the future compliant coatings are expected to be reformulated with water-borne technologies. Therefore, it is unlikely that PAR 1113 by itself will substantially increase the future usage of acetone in the district.

With regard to other possible replacement solvents, based on discussion with resin manufacturers and coating formulators, the trend in coating technologies is to replace EGBEs (e.g., glycol ethers) with less toxic/hazardous coalescing solvents such as texanol, ethylene glycol, and propylene glycol. Staff has verified this trend by reviewing product data sheets and MSDSs for currently available compliant low-VOC coatings. Additionally, a draft December 1995 report entitled "Improvement of Speciation Profiles for Architectural and Industrial Coating Operations" prepared by Dr. Albert C. Censullo for CARB indicates that a majority of current water based formulations (flats and non-flats) contain less hazardous solvents. Further, it appears from this information that the use of solvents, such as texanol and propylene glycol in water-borne coating formulations, is prevalent today and should continue into the future with the eventual replacement of more toxic and hazardous coalescing solvents such as EGBEs with less or nontoxic coalescing solvents.

As noted in the "Water Resources" section of this chapter, some future compliant two-component IM coating systems may contain diisocyanate compounds. While the trend of using less hazardous compounds is not reflected by the use of diisocyanate compounds, there should be no significant increase in the risk of upset due to the increasing use of these compounds. Like texanol, oxsol 100, propylene glycol, and ethylene glycol, diisocyanates are significantly less flammable as compared to currently used highly flammable conventional solvents. Therefore, the increased use of compliant coatings containing diisocyanates will be offset by the decrease use of more flammable solvents.

CONCLUSION: Potential hazard impacts resulting from adopting and implementing PAR 1113 are not expected to be significant for the following reasons. The increased usage of acetone as a result of implementing PAR 1113 will generally be balanced by reduced usage of other equally or more hazardous materials such as MEK, toluene, xylene, etc., which are equally or more hazardous. Further, emergency contingency plans that are already in place are expected to minimize potential hazard impacts posed by any increased use of acetone in future compliant coatings. In addition, businesses are required to report increases in the storage of flammable and otherwise hazardous materials to local fire departments to ensure that adequate conditions are in place to protect against hazard impacts.

Another reason hazard impacts from implementing PAR 1113 are not expected to be significant is that it is anticipated that resin manufacturers and coating formulators will continue the trend of using less toxic or hazardous solvents such as texanol, oxsol 100, propylene glycol, ethylene glycol, etc., in their compliant water-borne coatings. As a result, it is expected that future compliant AIM coatings will contain less or non-hazardous materials compared to conventional coatings, a net benefit.

While diisocyanates are more toxic, their flammability is significantly less than current solvents. Thus, overall hazard risks are not significantly increased as a result of using compliant coatings containing diisocyanates.

PROJECT SPECIFIC MITIGATION MEASURES: None required.

REMAINING IMPACTS: Since hazards impacts are not significant and in some respects speculative, no significant adverse impacts remain.

CUMULATIVE IMPACT: During past promulgation of amendments to various SCAQMD coating and solvent rules (e.g., 102, 1107, 1113, 1136, etc.) the SCAQMD received comments that acetone could result in a significant adverse hazards impact (e.g., risk of fire or explosion) because of its flammability. The SCAQMD has extensively analyzed the hazards impacts associated with the reformulation of coatings with acetone in EAs for 102, 1107, the November amendments to 1113, and 1136 and concluded that reformulation of products with acetone will not create significant adverse cumulative hazards. Furthermore, the cumulative impacts of PAR 1113 have been fully evaluated in the Final 1997 AQMP Program EIR, which is incorporated herein by reference.

There are no provisions of PAR 1113 that result in either project-specific or cumulative hazard impacts. Since the proposed project is not expected to create significant adverse project-specific hazard impacts, the proposed project's contribution to significant adverse cumulative energy impacts are less than cumulatively considerable (CEQA Guidelines §15130(a)(3) and, therefore, are not significant.

CUMULATIVE IMPACT MITIGATION: None required.

HUMAN HEALTH IMPACTS

The NOP/IS originally prepared for the 1999 amendment to Rule 1113 did not identify any potential significant adverse human health impacts associated with the proposed project. Subsequent to making the NOP/IS available to the public, comments were received indicating that PAR 1113 could generate significant adverse human health impacts as described below.

Significance Criteria:

The project will be considered to have a significant adverse human health impact if any of the following occur:

- The project equals or exceeds the SCAQMD's maximum individual cancer risk (MICR) thresholds for toxic air contaminants (TACs) as identified in the SCAQMD's CEQA Air Quality Handbook (SCAQMD 1993b). The MICR significance threshold for project specific and cumulative impacts is 10 in one million (10×10^{-6}).
- The project creates an excess cancer case of 0.5 or greater in a population subject to a cancer risk of greater than one in one million (1×10^{-6}).
- The project results in hazardous air pollutant emissions from the project which result in a hazard index greater than or equal to 1.0.
- The project results in hazardous air pollutant emissions that result in a facility-wide hazard index greater than or equal to 3.0.

PROJECT SPECIFIC IMPACT: Comments submitted to the SCAQMD by coating manufacturers and coating contractors on the NOP/IS and at various public meetings assert that low-VOC compliant coatings will contain compounds that are more toxic than current formulations. Based on discussions with manufacturers, exempt solvents are considered to be viable alternatives to aid coatings manufacturers in reformulating existing coatings to meet the interim and final VOC content limits proposed in PAR 1113. In the currently proposed amended rule, for example, acetone may be used as a replacement solvent for waterproofing sealer formulations. Waterproofing sealer formulators have used acetone in their coatings, but may increase the acetone content in an effort to comply with the proposed limit. The Final SEA for the 1996 amendments to Rule 1113, as well as the Final SEA for Rule 102, is referenced for an additional in-depth analysis of acetone as a substitute solvent.

Coalescing solvents such as texanol, propylene glycol, and ethylene glycol may be used more widely in low-VOC water-borne formulations as alternatives to their more toxic counterparts such as EGBE, EGEE, EGME and their acetates. Coalescing solvents act as plasticizers in certain coating formulations (e.g., nonflats) to allow the otherwise solid resin to flow together to form a film.

Diisocyanates (e.g., HDI, MDI, and TDI) may be used more widely in low-VOC two component IM systems. Comments received on the NOP/IS suggest that for some IM applications two component low-VOC systems containing isocyanates will replace existing higher-VOC two-component and one-component systems.

METHODOLOGY: Using available toxicological information to evaluate potential human health impacts associated with PAR 1113, staff has compared the toxicity of the most common currently used coating solvents to solvents expected to be used in reformulated, compliant coatings. As a measure of toxicity, staff compared: the Threshold Limit Values (TLVs) established by the American Conference of Governmental Industrial Hygiene (ACGIH), OSHA's Permissible Exposure Limits (PELs), the Immediately Dangerous to Life and Health (IDLH) levels recommended by the National Institute for Occupational Safety and Health (NIOSH), and health hazards developed by the National Safety Council.

As illustrated in Table 4-9, some of the replacement solvents have lower or less severe TLVs, PELs, IDLHs than traditional solvents. For example, acetone would be considered less toxic than all the listed traditional solvents. However, there are some replacement solvents that could have higher or more severe toxicological effects. In particular the diisocyanate group of solvents appear to have more severe toxicological effects than the listed traditional solvents. To analyze in more detail the toxic effects associated with the use of compliant low-VOC coatings, the SCAQMD conducted a health risk assessment (HRA) for the compounds listed in Table 4-9 consistent with the HRA procedures listed in the SCAQMD's Risk Assessment Procedures for Rules 1401 and 212 document. An HRA is used to estimate the likelihood of an individual contracting cancer or experience other adverse health effects as a result of exposure to toxic air contaminants (TACs). Risk assessment is a methodology for estimating the probability or likelihood of an adverse health effect occurrence.

Risks from carcinogens are expressed as an added lifetime risk of contracting cancer as a result of a given exposure. For example, if the emissions from a facility are estimated to produce a risk of one in one million (1×10^{-6}) to the most exposed individual, this means that the individual's chance of contracting cancer has been increased by one chance in one million over and above his or her chance of contracting cancer from all other factors (for example, diet, smoking, heredity and other factors). This added risk to a maximally exposed individual is referred to as a "maximum individual cancer risk" or MICR. For CEQA purposes, the SCAQMD's significance threshold for carcinogenic impacts is a MICR greater than or equal to 10 in one million (10×10^{-6}).

TABLE 4-9

Toxicity of Coating Solvents

Traditional/Conventional Solvents			
Solvents	**TLV (ACGIH) (ppm)**	**PEL (OSHA) (ppm)**	**IDLH (ppm)**
Toluene	100	200	2,000
Xylene	100	100	1,000
MEK	200	200	3,000
Isopropanol	400	400	12,000
Butyl Acetate	150	150	10,000
Isobutyl Alcohol	50	100	8,000
Stoddard Solvent	100	500	5,000
Petroleum Distillates (Naptha)	100	400	10,000
EGBE	25	50	700
EGME	5	25	Not Available
EGEE	5	200	Not Available
Acetone	750	750	20,000
Di-Propylene Glycol	Not Established	Not Established	Not Established
Propylene Glycol	Not Established	Not Established	Not Established
Ethylene Glycol	50	50	80
Texanol	Not Established	Not Established	Not Established
Oxsol 100	Not Established	Not Established	Not Established
t-Butyl Acetate	200	200	Not Available
Hexamethylene Diisocyanate (HDI)	0.005	Not Established	Not Available
Methylene Bisphenyl Diisocyanate (MDI)	0.005	Not Established	Not Available
Toluene Diisocyanate (TDI)	0.005 (0.02–STEL)	0.005	Not Available

To evaluate noncancer health effects from a TAC, exposure levels are estimated (just as with carcinogens), so that they can be compared to a corresponding Reference Exposure Level (REL). As for carcinogens, exposure is evaluated for the most exposed individual. Chronic exposures are evaluated using the same exposure assumptions described for carcinogens -- continuously for a 70-year residential lifetime or 8 to 9 hours per day and 50 weeks a year for a 46-year working (commercial or industrial) lifetime. For acute exposures, the maximum hourly airborne concentration of a TAC is estimated.

The health risk from exposure to a noncarcinogenic TAC is evaluated by comparing the estimated level of an sensitive receptor's exposure to the TAC to the TAC's REL. The ratio is expressed as a hazard index (HI), which is the ratio of the estimated exposure level to the REL:

$$\text{Hazard Index (HI)} = \frac{\text{Estimated Exposure Level}}{\text{Reference Exposure Level}}$$

A HI of one or less indicates that the estimated exposure level does not exceed the Reference Exposure Level, and that no adverse health effects are expected. For CEQA purposes, the SCAQMD's significance threshold for noncarcinogenic impacts is a hazard index greater than or equal to one.

The ratio of the estimated acute level of sensitive receptor's exposure to a TAC to the acute REL is called an acute HI. The ratio of the estimated chronic level of exposure to a TAC to its chronic REL is called a chronic hazard index.

Based on the foregoing HRA methodologies, the SCAQMD estimated the long-term carcinogenic, long-term chronic, and short-term acute risks associated with the use of the above listed compounds where toxicity data were available. Tables 4-10 through 4-12 highlight the results of this risk analysis. These tables present the amount of each compound that can be emitted and coating usage before the SCAQMD significance thresholds are exceeded. For a more detailed discussion of how the table values where derived and the unit risk factors, chronic RELs, and acute RELs used to conduct the HRAs, the reader is referred to Appendix E of this Draft SEA.

Carcinogenic Effects

PROJECT-SPECIFIC IMPACT: Discussions with coatings manufactures and review of coating product sheets indicate that TDI may be used in some low- or zero-VOC, water-borne compliant two-component IM coating systems. TDI is the only compound listed on Table 4-11 that has a carcinogenic unit risk factor according to the SCAQMD's Rule 1401. TDI is part of a group of compounds known as diisocyanates, which are low-molecular-weight aromatic and aliphatic compounds. Also included in this group, but not considered to be carcinogenic, are HDI and MDI. These water-borne compliant formulations are intended as direct replacements for their higher-VOC solvent-borne two component counterparts currently being applied. Comments received on the NOP/IS have suggested that the compliant water-borne two-component systems may also replace higher-VOC solvent-borne one-component IM systems. Thus, there could be an incremental increase in use of coatings containing TDI.

ANALYSIS: To analyze the potential cancer risks associated with the use of compliant coatings containing TDI to downwind receptors and applicators of these coatings, the SCAQMD conducted a HRA. As "worst-case", the SCAQMD assumed that approximately one percent (by weight) of the TDI in the two component system would be emitted, although in theory these low- to zero-VOC systems should not result in any volatilization of any VOC compounds, including TDI. The results of the carcinogenic HRA for the use of coatings containing TDI are shown in Table 4-10.

TABLE 4-10

Maximum Individual Cancer Risk from Potential Exposures to TDI Coatings
(Gallons Per Day That Would Exceed A MICR Of 10 x 10^{-6})

	Downwind Receptor Distances, (in meters)					
	25		50		100	
Compound	**Emissions** lbs/day	**Usage** gals/day	**Emissions** lbs/day	**Usage** gals/day	**Emissions** lbs/day	**Usage** gals/day
TDI	0.01	0.09	0.03	0.29	0.09	0.86

As shown in Table 4-10, less than one gallon per day of coatings containing TDI can be used before the significance threshold of a MICR >10 x 10^{-6} is exceeded at a downwind receptor distance of 100 meters. At closer source receptor distances the amount of daily coatings that can be used before the SCAQMD's significance threshold is even lower.

CONCLUSION: Although the daily usage levels in Table 4-10 are low, significant adverse carcinogenic human health impacts are not expected for downwind residential or sensitive receptors for the following reasons. As explained above, the resultant MICR from a HRA estimates the probability of a potential maximally exposed individual contracting cancer as a result of continuous exposure to toxic air contaminants over a period of 70 years for residential and 46 years for worker receptor locations. Most, if not all, applications of low- or zero-VOC two component IM systems containing TDI will occur primarily in industrial settings where residential or sensitive receptors are not proximately located. Furthermore, the application of these coating systems will be for maintenance (e.g., touch-up and repair) or repaint purposes, lasting only a couple days to weeks, and occurring on an intermittent basis (e.g., once every couple of years to every ten years, or more). Therefore, downwind residential or sensitive receptors will not be exposed on a long-term basis to TDI that would result in significant adverse carcinogenic human health impacts.

In the context of worker exposure (e.g., applicators of the coatings), significant adverse impacts are not expected. Discussions with resin manufacturers and coating formulators reveal that significant carcinogenic risks are eliminated by following the coating manufacturers', OSHA's, and ACGIH's required and recommended, respectively, safety practices for handling materials containing TDI. See the "Acute Effects" section for a description of the recommended safety practices for handling materials containing TDI, as well as HDI and MDI. According to resin manufacturers and coating formulators the safety practices and application techniques associated with higher-VOC solvent-borne two component systems will be the same for the compliant water-borne two component systems, in part because some existing two-component systems also contain diisocyanates. Thus, applicators will not require additional training beyond what is currently required regarding the proper handling or proper application of these compliant coatings.

Furthermore, it appears that TDI in compliant water-borne two component systems are being phased out with HDI and MDI. Since HDI and MDI are noncarcinogenic, the replacement of TDI with HDI and MDI would eliminate all carcinogenic risk associated with the use of these compliant coatings.

Chronic Effects

PROJECT-SPECIFIC IMPACT: Comments received on the NOP/IS for PAR 1113 and during Industry Working Group meetings suggest that some of the replacement solvents that could be used to formulate future compliant low-VOC coatings could cause significant adverse chronic human health impacts.

ANALYSIS: To analyze the existing chronic health risks associated with solvents used in conventional coatings to downwind receptors and applicators of these coatings, the SCAQMD prepared a HRA for solvents used in conventional coatings (Table 4-11). Table 4-11 shows the number of gallons it would take on a daily basis to equal or exceed a chronic hazard index of 1.0. Since for most AIM coating applications no more than 25 – 30 gallons can be applied per day, solvents that take more than approximately 25 gallons per day to contribute to a chronic hazard index of 1.0 or more could create significant human health impacts. As shown in Table 4-11, the lists of both conventional solvents and replacement solvents contain compounds where typical rates of usage could contribute to a chronic hazard index greater than or equal to 1.0.

TABLE 4-11

Long-term Chronic Exposure Risk Assessment
(Gallons Per Day That Would Exceed A Chronic Hazard Index Of 1.0)

	Downwind Receptor Distances					
	25m		**50m**		**100m**	
Conventional Solvents	**Emissions** lbs/day	**Usage** gals/day	**Emissions** lbs/day	**Usage** gals/day	**Emissions** lbs/day	**Usage** gals/day
Toluene	30.060	28.628	91.141	86.801	341.122	324.878
Xylene	45.090	42.943	136.712	130.202	511.683	487.318
MEK	150.299	143.142	455.705	434.005	1705.611	1624.392
Isopropol Alcohol	300.598	286.284	911.411	868.010	3411.223	3248.784
Glycol Ethers/Acetates	3.006	2.863	9.114	8.680	34.112	32.488
EGBE	3.006	2.863	9.114	8.680	34.112	32.488
EGEE	30.060	28.628	91.141	86.801	341.122	324.878
EGME	3.006	2.863	9.114	8.680	34.112	32.488
Replacement Solvents						
Ethylene Glycol	60.120	57.257	182.282	173.602	682.245	649.757
Propylene	450.897	429.426	1367.116	1302.016	5116.834	4873.176
TDI	0.009	0.09	0.02	0.2	0.07	0.67
HDI	0.002	0.014	0.005	0.043	0.017	0.162

Like risks associated with carcinogens, risks associated with compounds that pose chronic hazard risk are based on long-term continuous exposure. AIM coatings are applied on an infrequent and intermittent basis. For first time painting or repainting situations, application of AIM coatings occurs all at one time over the course of hours or several weeks depending on the specific nature of the job. For touch-up and maintenance applications, actual application of AIM coatings takes several hours to several weeks to complete depending on the specific nature of the job and occurs periodically through-out the year or over the course of several years. Therefore, because of the intermittent and infrequent application of AIM coatings, long-term exposure of downwind residential or sensitive receptors to chronic health effects is not anticipated from the implementation of PAR 1113.

CONCLUSION: Chronic exposure of coating applicators to compliant coatings containing replacement solvents, in particular the diisocyanate compounds, is not expected to produce significant chronic risks since coating applicators will be following the coating manufacturers' and ACGIH's recommended safety practices and OSHA's required safety practices for handling materials containing both conventional and replacement solvents. The recommended safety practices for handling these materials are discussed in the "Acute Effects" section. Additionally, the safety practices and application techniques associated with higher-VOC solvent-borne coatings will be the same for the compliant water-borne coatings. Thus, applicators will not need additional training regarding the proper handling or application of compliant coatings containing TDI.

In the context of IM coatings, it appears that TDI and HDI in compliant water-borne two-component systems is being replaced in some coating formulations with MDI. This compound is currently not listed in SCAQMD's Rule 1401 as a chronic TAC. Therefore, based on current information, the replacement of TDI and HDI with MDI would further eliminate the chronic risk associated with the use of these compliant coatings containing TDI and HDI.

With regard to EGBE, the SCAQMD analyzed potential adverse chronic human health impacts associated with the use of water-borne wood coatings and flats containing EGBE in the September 1995 EA for the Rule 1136 - Wood Products Coatings, and the November 1996 SEA for Rule 1113 – Architectural Coatings. These analyses concluded that reformulated water-borne wood coatings and flats containing EGBE would not result in significant adverse chronic human health impacts. These documents can be obtained by contacting the SCAQMD Public Information Center at (909) 396-2039.

Relative to AIM coatings, EGBE is a coalescing solvent currently in use for some water-borne formulations. Based on discussions with resin manufacturers and coating formulators, the current trend in AIM coating technologies is to replace EGBEs (e.g., glycol ethers) with less toxic or hazardous coalescing solvents such as texanol, ethylene glycol, and propylene glycol. The SCAQMD has verified this trend by reviewing product data sheets and material safety data sheets (MSDSs) for currently available compliant low-VOC coatings. Additionally, a draft December 1995 report entitled "Improvement of Speciation Profiles for

Architectural and Industrial Coating Operations" prepared by Dr. Albert C. Censullo for CARB indicates that a majority of current water based formulations (flats and non-flats) contain non-HAP solvents. The report, which is intended to upgrade the species profiles for a number of sources within the general categories of industrial and architectural coating operations, identified that the four most common solvents in the 52 randomly chosen water-borne coatings (flats and non-flats) as: texanol (found in 37 of 52); propylene glycol (31 of 52); diethylene glycol butyl ether (23 of 52); and ethylene glycol (14 of 52). It appears from this information that the use of non-HAP solvents such as texanol and propylene glycol in water-borne coating formulations, is already becoming more prevalent and this trend should continue in the future with the eventual replacement of more toxic and hazardous coalescing solvents such as EGBEs with less toxic or hazardous materials.

SCAQMD research on PAR 1113 identified an article entitled "Clean Air Act Amendments" which appeared in the October 1995 edition of the Painting and Coatings Industry Magazine. This article indicates that current coatings containing hazardous air pollutants (HAP) such as ethylene glycol ethers or ethylene glycol ether acetates can be replaced with non-HAP solvents such as propylene glycol ethers or propylene glycol ether acetates in order to comply with the 1990 CAAA. The article further states, "Coatings that meet or surpass end-user standards can be produced using low-VOC and non-HAPs-formulating technology, which enable compliance with legislation driven by the 1990 CAAA." This implies that non-HAP solvent containing coatings can be manufactured now to meet the 1990 CAAA requirements.

Staff research on PAR 1113 identified another relevant article by the Chemical Manufacturers Association, entitled "A Review of the Uses and Health Effects of Ethylene Glycol Monobutyl Ether (EGBE)" (CMA, 1995). This article indicates that based on recent studies there is little possibility of significant adverse health effects in humans at exposure levels encountered in the typical workplace. Further, the article points out that exposures to EGBE in consumer use would be considerably lower than the ACGIH exposure limit of 25 ppm. The article provided information that workers exposed to EGBE levels twice the ACGIH exposure limit did not experience adverse health effects. To the extent that PAR 1113 accelerates the current trend away from EGBEs, human health benefits would be expected.

Acute Effects

PROJECT-SPECIFIC IMPACT: Comments received on the NOP/IS originally prepared for the 1999 amendments to Rule 1113 and during Industry Working Group meetings suggest that some of the replacement solvents that could be used to formulate future compliant low-VOC coatings could cause significant adverse acute human health impacts.

Acute Worker Health Analysis

ANALYSIS: Several of the solvents used in conventional coatings that were analyzed for chronic affects have also been analyzed for short-term acute worker health effects through short-term, high-level or "acute" exposure. Table 4-12 presents the results of the SCAQMD's acute HRA for the solvents used in conventional coatings.

As shown in Table 4-12, low usage conventional coatings formulated with EGBE, EGEE, or EGME could trigger acute human health impacts. As noted in earlier in this chapter, there is currently a trend by resin manufacturers and coating formulators of replacing currently applied coatings containing EGBE, EGEE, and EGME with less toxic coalescing solvents such as texanol, ethylene glycol, and propylene glycol. It is anticipated these less toxic coalescing solvents will be used to formulate future compliant low-VOC coatings. To a certain extent, PAR 1113 may have the beneficial effect of encouraging or accelerating the trend of formulating AIM coatings with less toxic or nontoxic solvents. Therefore, the implementation of PAR 1113 may ultimately provide human health benefits.

Discussions with coatings manufactures and coating applicators and review of coating product sheets indicates that for some IM coating applications diisocyanates (e.g. TDI, HDI, and MDI) may be used to formulate low or zero-VOC, water-borne compliant two component IM systems. These water-borne compliant formulations are intended as direct replacements for their higher-VOC solvent-borne two-component counterparts currently being used, which also contain diisocyanates. However, some commentators have asserted that the compliant water-borne two component systems may also replace higher-VOC solvent-borne one component IM systems, which predominately do not contain diisocyanates. Thus, there could be an incremental increase in the use of coatings containing TDI, HDI, and MDI.

TABLE 4-12

Short-term Acute Exposure Risk Assessment for Conventional Solvents (Gallons Per Day That Would Exceed An Acute Hazard Index Of 1.0)

	Downwind Receptor Distances					
	25m		**50m**		**100m**	
Compound	**Emissions** lbs/hr	**Usage** gals/day	**Emissions** lbs/hr	**Usage** gals/day	**Emissions** lbs/hr	**Usage** gals/day
Toluene	20.00	152.38	39.98	304.58	107.10	815.96
Xylene	2.20	16.76	4.40	33.50	11.78	89.76
MEK	15.00	114.29	29.98	228.43	80.32	611.97
Isopropol Alcohol	1.50	11.43	3.00	22.84	8.03	61.20
Glycol Ethers & Acetates	0.77	5.84	1.53	11.67	4.10	31.27
EGBE	0.75	5.71	1.50	11.42	4.02	30.60
EGEE	0.19	1.41	0.37	2.82	0.99	7.55
EGME	0.17	1.26	0.33	2.51	0.88	6.73

Diisocyanates, including TDI, HDI, and MDI, are low-molecular-weight aromatic and aliphatic compounds. These compounds are widely used to manufacture flexible and rigid foams, fibers, coatings, and elastomers. These compounds are increasingly used in the automobile industry, autobody repair, and building insulation materials. The major route of occupational exposure to diisocyanates is inhalation of the vapor or aerosol; exposure may also occur through skin contact during the handling of liquid diisocyanates. Occupational exposure could potentially occur during the mixing and application of two-component IM coatings containing diisocyanates.

Diisocyanates are powerful irritants to the mucous membranes of the eyes and gastrointestinal and respiratory tracts. Direct skin contact with diisocyanates can also cause marked inflammation. Respiratory irritation may progress to a chemical bronchitis with severe bronchospasm.

After one or more exposures, diisocyanates can also sensitize workers, making them subject to severe asthma attacks if they are exposed again--even at concentrations below the NIOSH REL. Death from severe asthma in sensitized subjects has been reported. Additionally, sporadic cases of hypersensitivity pneumonitis (HP) have also been reported in workers exposed to diisocyanates. Individuals with acute HP typically develop symptoms four to six hours after exposure.

The main concern is when the coating is sprayed onto the substrate. During the application process it may be possible that the diisocyanates could volatilize and come into contact with the worker. Staff contacted resin manufacturers and coating formulators to obtain additional information about TDI, HDI, and MDI. Resin manufacturers indicated that there is currently a trend to replace TDI, which is also a carcinogen, with the less hazardous diisocyanate compounds, HDI and MDI. Furthermore, a resin manufacturer indicated that use of a plural spraying system would minimize the amount of diisocyanate exposure because the diisocyanate compounds bind to the coating constituents during this type of spraying application.

Although adverse human health effects from acute exposures to TDI, HDI, and MDI may occur, the California State Office of Environmental Health Hazard Assessment (OEHHA) has not finalized acute RELs for TDI, HDI, and MDI. As a result, there is currently no SCAQMD approved method for analyzing acute health impacts from these compounds. Further, even conservatively using the short-term exposure limit (STEL) of 0.02 for TDI as a surrogate REL for TDI, HDI, and MDI, coating applicators would have to apply complicated two-component IM systems at a rate of four gallons or more per hour (assuming a sensitive receptor is located at a distance of 100 meters) to exceed an acute HI of 1.0. Investigation reveals that it is not likely that painters could apply two-component systems at this rate. Further, the formulation of compliant IM coating systems not containing diisocyanate compounds and the development of spraying technology that minimizes diisocyanate emissions should be available when the interim and final compliance VOC content limits go into effect. Consequently, PAR 1113 is not expected to result in significant adverse impacts to coating applicators.

In addition, significant adverse acute health impacts are not expected to occur as a result of implementing PAR 1113 if workers applying two-component coating systems containing diisocyanates follow OSHA's required, and the coating manufacturers' and ACGIH's recommended safety practices for handling materials containing diisocyanates. The following paragraphs summarize some of the safety measure required or recommended by NIOSH and OSHA to reduce acute human health impacts associated with the use of compliant coatings containing diisocyanates.

As noted previously, there is already a trend in the coatings industry to move away from reformulating coatings with hazardous materials to less or non-hazardous materials. Therefore, when feasible, coating applicators should use coatings that contain less hazardous materials. For two component IM systems that contain diisocyanates, coating applicators can use compliant one component low-VOC or zero-VOC IM systems. Other safety measures to protect individuals against exposure to diisocyanates are described in the following paragraphs.

Worker Isolation – Areas containing diisocyanates should be restricted to essential workers. If feasible, these workers should avoid direct contact with diisocyanates by using automated equipment operated from a control booth or room with separate ventilation.

Protective Clothing and Equipment – When there is potential for diisocyanate exposure, workers should be provided with and required to use appropriate personal protective clothing and equipment such as coveralls, footwear, chemical-resistant gloves and goggles, full faceshields, and suitable respiratory equipment.

Respiratory Protection – Only the most protective respirators should be used for situations involving exposures to diisocyanates because they have poor warning properties, are potent sensitizers, or may be carcinogenic. These respirators include:

- Any self-contained breathing apparatus with a full facepiece operated in a pressure-demand or other positive-pressure mode, and

- Any supplied-air respirator with a full facepiece operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in a pressure-demand or other positive-pressure mode.

  Any respiratory protection program must, at a minimum, meet the requirements of the OSHA respiratory protection standard [29 CFR 1910.134]. Respirators must be certified by NIOSH and MSHA according to 30 CFR or by NIOSH (effective July 19, 1995) according to 42 CFR 84. A complete respiratory protection program should include: (1) regular training and medical evaluation of personnel, (2) fit testing, (3) periodic environmental monitoring, (4) periodic maintenance, inspection, and cleaning of equipment, (5) proper storage of equipment, and (6) written standard operating procedures governing the selection and use of respirators. The program should be evaluated regularly. The following publications contain additional information about selection, fit testing, use, storage, and cleaning of respiratory equipment: NIOSH Guide to Industrial Respiratory Protection [NIOSH 1987a] and NIOSH Respiratory Design Logic [NIOSH 1987b].

Worker and Employer Education – Worker education is vital to a good occupational safety and health program. OSHA requires that workers be informed about:

- Materials that may contain or be contaminated with diisocyanates;
- The nature of the potential hazard [29 CFR 1910.1200]. Employers must transmit this information through container labeling, MSDSs, and worker training;
- The serious health effects that may result from diisocyanate exposures; and
- Any materials that may contain or be contaminated with diisocyanates.

Additionally, workers should take the following steps to protect themselves from diisocyanate exposure:

- Be aware that the highest diisocyanate concentrations may occur inside containment structures.
- Use appropriate respiratory protection when working with diisocyanates.
- Wash hands and face before eating, drinking, or smoking outside the work area.
- Shower and change into clean clothes before leaving the worksite.
- Participate in medical monitoring and examination programs, air monitoring programs, or training programs, offered by your employer.

According to resin manufacturers and coating formulators, the above safety practices and application techniques recommended for future compliant low-VOC coatings are currently used for conventional solvent-borne two-component systems. Thus, applicators will not require additional training regarding the proper handling or application of compliant coatings containing diisocyanates. This will further reduce the applicator's exposure to diisocyanates.

Acute Sensitive Receptor Health Analysis

In the context of downwind residential or sensitive receptors, most, if not all, applications of low- or zero-VOC two-component IM systems containing diisocyanates will occur primarily in industrial settings where residential or sensitive receptors or not proximately located (e.g., greater than 100 meters). However, some commentators have asserted that there are some applications of these coatings where the public could be exposed (e.g., bridge coating applications). The rule, however, prohibits IM coatings for residential use or facilities not exposed to extreme environmental conditions, such as office space and meeting rooms.

The SCAQMD investigated the potential for acute exposures of sensitive receptors to low or zero-VOC two-component IM systems containing diisocyanates in settings that are not strictly considered industrial settings. This investigation, which includes discussions with resin manufacturers, coating formulators, and coating applicators, as well as the review of various health-related studies, reveals that the primary route of diisocyanate exposure to the public would be through the spraying of low- or zero-VOC two component IM systems. Controlled laboratory monitoring by Mobay[10] while mixing a two component system containing HDI showed nondetectable air concentrations of HDI. Furthermore, field monitoring of hand brushing and rolling application of a single component system containing HDI conducted by CalTrans showed that HDI concentrations were not detectable. Additionally, field monitoring studies conducted by Mobay during the brushing and rolling of one component IM topcoats (one system containing HDI and the other containing MDI), as well as the spraying of a two-component IM system containing HDI, revealed that HDI and MDI concentrations were well below HDI and MDI thresholds recommended by ACGIH and OSHA. Therefore, mixing and hand brushing or rolling of the compliant one or two component systems appears not to release diisocyanates such that the general public would suffer acute significant adverse human health impacts.

It should be again noted that other water-borne technologies are in development that could be viable replacements for some applications of two component low-VOC IM systems containing diisocyanates. For example some resin manufactures and coating formulators are offering compliant low-VOC single component, water-borne acrylic, acrylic/epoxy, acrylic urethane dispersed, etc., IM coating technologies, instead of the two-component polyurethane systems that contain diisocyanates. Consequently, PAR 1113 is not expected to result in significant adverse impacts to sensitive receptors.

Rule 1113 also contains an optional averaging provision which might enable affected facilities to using IM coatings with a higher VOC content that do not contain diisocyanates by allowing them to manufacture and sell coatings at various VOC levels for a specific coating category assuming the category, as a whole, complies with a sales-weighted average VOC content equal to that in the rule. This provision would allow another mechanism to avoid potential acute human health impacts from PAR 1113.

CONCLUSION: Based upon the above considerations, significant adverse acute human health impacts are not expected as a result of implementing PAR 1113. Further, the SCAQMD will conduct a technical assessment prior to each VOC content limit going into effect for the affected coatings to determine what the state of coating technology is at that

[10] Mobay is now Bayer.

time and what, if any, environmental issues are associated with the manufacture and use of such compliant coatings.

Overall Conclusion

Based upon the preceding analyses, PAR 1113 is not expected to create significant adverse human health impacts for the following reasons. First, although TDI, which is classified as a carcinogen, could be use in future compliant two-component IM coatings, it is not expected to create significant adverse carcinogenic impacts because application of IM coatings occurs primarily in industrial settings where sufficient safety equipment and procedures are in place to prevent significant exposures. Furthermore, the application of these coating systems will be for maintenance (e.g., touch-up and repair) or repaint purposes, lasting only a couple days to weeks, and occurring on an intermittent basis (e.g., once every couple of years to every ten years, or more). No increased cancer risks are anticipated since carcinogenic effects typically require long-term exposures. Finally, coating technologies are moving away from using TDI to formulate low-VOC coatings to using non-carcinogens, such as HDI or MDI.

Second, significant adverse chronic human health impacts are not anticipated for the following reasons. Some solvents used in conventional coatings that have the potential to create chronic human health impacts (e.g., EGBE), may be replaced by compliant low-VOC coatings that do not create significant adverse human health impacts (e.g., glycol ethers). In addition, as mentioned for carcinogens, for IM coatings in particular, long-term exposures that could generate significant adverse chronic human health impacts, are not anticipated.

No significant acute human health exposures are anticipated from implementing PAR 1113 for the following reasons. It is anticipated that for some coating applications, less toxic coalescing solvents will be used to formulate future compliant low-VOC coatings than is currently the case. Also, the development of spraying technology will further reduce diisocyanate emissions. Further, to exceed an acute hazard index of 1.0, painters would have to apply complicated two-component coatings at a rate of four gallons or more per hour. Investigation reveals that it is not likely that painters could apply two-component systems at this rate. Finally, based on actual field monitoring data, the brushing, rolling, or spraying of one- or two-component low-VOC IM systems containing diisocyanate compounds should not expose the public at large to significant adverse human health impacts. The concentrations of diisocyanate compounds emitted during the application of these IM systems are below the established health protective thresholds. In the context of worker (e.g., applicator) exposure, the use of personal protective equipment should provide adequate protection to applicators during coating application.

PROJECT SPECIFIC MITIGATION MEASURES: None required.

REMAINING IMPACTS: Since human health impacts are not significant, no adverse impacts remain.

CUMULATIVE IMPACT: The cumulative impacts were thoroughly analyzed in the 1997 AQMP Final Program EIR, which is herein incorporated by reference along with its adopted mitigation measures. The 1997 AQMP Program EIR concluded that human health impacts would be cumulatively significant based upon the increased usage of acetone and glycol ether (e.g., EGBE) formulations, which was seen to be at that time the replacement solvent of choice. As noted earlier current information demonstrates an ever-increasing trend away from the use of glycol ethers and towards the use of less toxic coalescing solvents such as texanol, propylene glycol, and ethylene glycol. In regards to the potential increase use of diisocyanate compounds in compliant IM two-component formulations, carcinogenic, chronic, and acute significant adverse exposures are not expected as explained above. Consequently, PAR 1113's contribution to the cumulatively significant impacts to human health found in the 1997 AQMP Final Program EIR is less than cumulatively considerable and is thus not significant.

There are no provisions of PAR 1113 that result in either project-specific or cumulative human health impacts. Since the proposed project is not expected to create significant adverse project-specific human health impacts, the proposed project's contribution to significant adverse cumulative energy impacts are less than cumulatively considerable (CEQA Guidelines §15130(a)(3) and, therefore, are not significant.

CUMULATIVE IMPACT MITIGATION: None required.

ENVIRONMENTAL IMPACTS FOUND NOT TO BE SIGNIFICANT

An Initial Study (see Appendix B) was originally prepared for the 1999 amendments to Rule 1113, describing anticipated environmental impacts resulting from implementing PAR 1113. It was concluded in the Initial Study that the environmental areas identified in the following subsections would not be significantly adversely affected by PAR 1113. These environmental areas, therefore were not further analyzed in this Final SEA for the 1999 amendments to Rule 1113. The currently proposed amendments are not expected to generate significant adverse environmental impacts in the following environmental areas for the same reasons given in the Final SEA for the 1999 amendments to Rule 1113. A brief discussion of why PAR 1113 will not significantly adversely affect each of these environmental areas is provided in the following sections.

Land Use and Planning

Implementation of the proposed amendments will not cause significant adverse impacts to land uses or land use planning in the district. It is anticipated that any increased activities will occur at existing facilities or construction sites. Thus, no new resources or facilities are expected to be constructed which would result in any land use impacts.

No new development or alterations to existing land use designations will occur as a result of the implementation of the proposed amendments. It is not anticipated that existing land uses located in the district would require additional land to continue current operations or require rezoning as a result of implementing PAR 1113. Therefore, no significant adverse impacts affecting existing or future land uses are expected.

Population and Housing

Human population in the district is anticipated to grow regardless of implementing PAR 1113. The proposed amendments will primarily affect the formulation of architectural coatings and are not anticipated to generate any significant effects, either direct or indirect on the district's population as no additional workers are anticipated to be required to comply with the proposed amendments. Further, PAR 1113 is not expected to cause a relocation of population within the district. As a result, housing in the district is expected to be unaffected by the proposed amendments. New housing construction is not expected to be affected by the use of lower-VOC coatings, although costs of compliant coatings used for housing construction could increase two to seven dollars per gallon (see Appendix F, Addendum to Staff Report, Final Socioeconomic Impact Assessment – Proposed Amendments to Rule 1113; SCAQMD, 1999). This cost increase is not expected to result in any physical effects. Direct economic impacts are not required to be analyzed pursuant to CEQA unless they also have a significant, direct effect on physical environmental parameters.

Geophysical

Architectural coatings are applied to buildings, stationary structures, roads, etc. The proposed amendments affect coating formulators and have no effects on geophysical formations in the district. Therefore, PAR 1113 is not expected to result in additional exposure of people to potential impacts involving seismically, landslides, mudslides or erosion as no new development is anticipated to be generated by PAR 1113.

Biological Resources

Implementation of the proposed amendments will not cause impacts to sensitive habitats of plants or animals because all activities will typically occur at construction, industrial or commercial sites already in operation. No new development that could potentially adversely affect plant and animal life is anticipated. Potential impacts to aquatic life from releases of excess paint and associated wastewater disposed of in sewer and storm drains is discussed in the "Water Quality Impacts" section of Chapter 4. The analysis of water quality impacts to both groundwater and surface water concluded that PAR 1113 would not generate significant adverse water quality impacts.

Energy and Mineral Resources

Electricity

Because add-on control equipment is not expected to be used to comply with the provisions of PAR 1113, no additional energy use is expected to be required. Additionally, PAR 1113 will not substantially increase the number of businesses or amount of equipment in the district. Furthermore, energy usage associated with providing power for special spray equipment used to apply reformulated coatings, is expected to be negligible. Currently, almost 75 percent of the electricity used in the district is imported from out-of-state power plants. Thus, there is a substantial amount of unused generating capacity in the basin. Any additional electricity needed to power special spray equipment would most likely be provided by out-of-state power plants. Any incremental power generation necessary to power special spray-equipment operation would be negligible compared to overall in-district generation and could be easily met by existing in-district capacity. Therefore, no increases in energy consumption or mineral resources are expected from the implementation of PAR 1113. Consequently, energy impacts are not considered to be significant.

The SCAQMD received one comment on the NOP/IS for PAR 1113 asserting that PAR 1113 would increase the demand for electrical power to manufacture more compliant low-VOC coatings in the future than is currently necessary to manufacture. This comment is based on the assumption that low-VOC coatings have a high solids content and, therefore, lower coverage than conventional coatings and the assumption that low-VOC are less durable and need to be recited more frequently. Both of these issues, i.e., more thickness and more frequent recoating have been analyzed in the “Air Quality Impacts” section of this chapter. In general, staff evaluation of coating product data sheets for a substantial number of conventional and low-VOC coatings (see the tables in Appendix D, status reports in Appendix G and Table 4-2) produced the following results. First, low-VOC coatings have comparable solids content and coverage area compared to conventional coatings. The analysis also concluded that low-VOC coatings had comparable durability characteristics compared to conventional coating. Therefore, there is no evidence that manufacturing low-VOC coatings will increase electric energy demand. Even if energy demand increased substantially, manufacturing additional volumes of AIM coatings would not be considered and inefficient or wasteful use of energy.

Natural Gas

The consumption of natural gas in the district is not expected to increase as a result of the implementation of PAR 1113. Electricity will be the primary source of energy used to power the spraying equipment operated at various sites. As noted in the previous subsection, it is anticipated that there will be a negligible increase in electricity usage as a result of implementing PAR 1113. Consequently, natural gas energy impacts from implementing PAR 1113 are not considered to be significant.

Fossil Fuels

PAR 1113 is also expected not to substantial increase energy consumption from non-renewable resources (e.g., diesel and gasoline) above current district usage levels. Any incremental fuel usage from trips associated with more frequent application of compliant coatings are expected to be negligible. As noted in the transportation/circulation discussion in this Chapter, there is no evidence implementing PAR 1113 will require more frequent application of compliant coatings. As a result, PAR 1113 is not expected to increase transport trips. Therefore, fossil fuel energy impacts from implementing PAR 1113 are not considered to be significant.

Mineral Resources

A comment was received on the NOP/IS for PAR 1113 asserting that PAR 1113 would require the production of more compliant low-VOC coatings in the future than is currently necessary to manufacture. This would ultimately result in the disposal of more paint cans, resulting a wasteful use of a natural resource, i.e., metal for the cans. As discussed in the "Electricity" subsection above, available information on low-VOC coatings contradict the assertion that more low-VOC coatings would need to be manufactured than would otherwise be necessary with conventional coatings. Consequently, PAR 1113 is not expected to result in a wasteful use of natural resources.

Noise

No significant noise impacts are associated with the use of architectural coatings. Coating formulators within the district potentially affected by the proposed amendments are located in existing construction industrial, or commercial areas. It is assumed that these facilities are subject to and in compliance with existing community noise standards. In addition to noise generated by current operations, noise sources in each area include nearby freeways, truck traffic to adjacent businesses, and operational noise from adjacent businesses.

In general, the primary noise source at existing facilities is generated by vehicular traffic, such as trucks transporting raw materials to the facility, trucks hauling wastes away from the facility, trucks to recycle waste or other materials, and miscellaneous noise such as spray equipment (i.e. compressors, spray nozzles) and heavy equipment use (forklifts, trucks, etc.). Noise is generated during operating hours, which generally range from 6 a.m. to 5 p.m. Monday through Friday. PAR 1113 is not expected to alter noise from existing noise generating sources. It is likely that affected companies are operating in compliance with any local noise regulations that may exist in their respective communities. Therefore, no significant noise impacts are expected from the proposed amendments.

Additionally, the implementation of PAR 1113 is not expected to result in significant noise impacts in residential areas. As with industrial or commercial areas, it is assumed that these areas are subject to local community noise standards. Contractors or do-it-yourselfers applying compliant PAR 1113 coatings in residential areas are expected to comply with local community noise standards.

One comment was received on the NOP/IS asserting that noise impacts would increase because low-VOC coatings have a lower coverage area than conventional coatings so noisy spray equipment would be used for longer periods of time. As already discussed, low-VOC coatings have a coverage area comparable to conventional coatings (see the "More Thickness" discussion in the "Air Quality Impacts" section of this chapter. Further, coating application systems that rely on pressure and a power source are available that have very low noise levels associated with them. Consequently, no significant adverse noise impacts are anticipated.

Utilities and Service Systems

The proposed amendments will not substantially increase the amount of businesses or equipment in the district. Reformulation of coatings is not expected to require additional utility or service systems. In fact, PAR 1113 may actually result in fewer impacts to utilities and/or public service agencies because compliant coatings are expected to be formulated with less hazardous materials compared to current coatings. Demands on utilities or utility systems are not expected to increase and impacts to utilities are therefore, not considered to be significant.

Aesthetics

The proposed amendments do not require any changes in the physical environment that would obstruct any scenic vistas or views of interest to the public. In addition, no major changes to existing facilities or stockpiling of additional materials or products outside of existing facilities are expected to result. The reason for this determination is that any physical changes would occur at existing industrial or commercial sites. Therefore, no significant impacts adversely affecting existing visual resources such as scenic views or vistas, etc. are anticipated to occur.

One comment was received on the NOP/IS for PAR 1113 asserting that significant aesthetic impacts will result from the use of low-VOC coatings due to defects in appearance after application because the rule contains a compliance schedule insufficient for coating formulators to produce acceptable quality low-VOC products. The current compliance proposal is a modification of an earlier version of PAR 1113 and is the result of input received during the Industry Working Group meetings. The current compliance schedule should ensure that formulators have sufficient time to reformulate products that exhibit the desired performance characteristics. Also, the amendments have been in effect for three years under the 1999 amendments as manufacturers have already purchased products complying with the interim limits and should be currently developing new products that meet the final limits.

Cultural Resources

There are existing laws in place that are designed to protect and mitigate potential impacts to cultural resources. Should archaeological resources be found during the application of Rule 1113 coatings to newly constructed structures or existing structures, the application of such coating would cease until a thorough archaeological assessment is conducted. Furthermore, the application of architectural coatings, in the vast majority of situations, would occur after construction where archaeological resources would have already been disturbed. The proposed revisions to Rule 1113 are, therefore, not anticipated to result in any activities or promote any programs that could have a significant adverse impact on cultural resources in the district.

One comment was received on the NOP/IS for PAR 1113 asserting that significant cultural resource impacts will occur due to potential negative impacts on the maintenance of "historic and ethnically significant architectural structures in Southern California." First, industrial maintenance coatings are not typically used for residential use or for use in painting the outside of buildings, although some nonflat coatings may be used for a structure's exterior trim. In spite of this, based upon information on currently available compliant products, performance characteristics of existing and reformulated products should be sufficient to meet the weathering impacts on outdoor structures. Consequently, significant adverse impacts to cultural resources are not anticipated as a result of implementing PAR 1113.

Recreation

The proposed amendments will not generate additional demand for, or otherwise affect land used for recreational purposes. Further, as already explained, the proposed amendments are not expected to have adverse affects on land uses in general. No significant adverse effects on recreational facilities were identified. One comment received on the NOP indicated that recreation may be affected because demand for parks would increase due to increased job losses and unemployed workers. According to the Socioeconomic Impact Assessment prepared for the 1999 amendments to Rule 1113, PAR 1113 is expected to result in approximately 1,492 future jobs foregone annually through 2015. In an area with a population of approximately 15 million people, an average increase of 1,492 people using recreational facilities in the future in the district is considered to be a negligible effect and, therefore, not significant.

Economic Impacts

Detailed analyses of economic or social effects are necessary only when they have significant impacts on physical environmental parameters. The proposed amendments to Rule 1113 would lower the VOC content limits for some coating categories, etc. As a result of implementing PAR 1113, no significant adverse direct or indirect (secondary) environmental impacts resulting from economic impacts have been identified. There are no environmental impacts that can be traced from socioeconomic effects. A socioeconomic analysis was nevertheless prepared. The socioeconomic impact report for PAR 1113 is included in the Final Staff Report for the 1999 amendments to Rule 1113. Persons interested in obtaining copies of the Final Staff Report should contact the district Public Information Center at (909) 396-2039.

OTHER CEQA TOPICS

The following sections address various topics and issues required by CEQA such as growth inducement, short-term versus long-term effects, and irreversible changes.

Irreversible Environmental Changes

CEQA Guidelines §15126.2(c) requires an environmental analysis to consider "any significant irreversible environmental changes which would be involved if the proposed action should be implemented." The original Initial Study prepared for the 1999 amendments to Rule 1113 identified air quality, water resources, and public resources, as potential impact areas. Comments received on the Initial Study suggested that potential transportation/circulation, solid/hazardous waste, hazards, and human health impacts be evaluated.

The analysis concluded that no significant adverse project-specific or cumulative impacts would occur to any of these environmental areas. For example, the "Air Quality Impacts" analysis included an evaluation of eight issues identified by industry that might produce significant adverse air quality impacts. The results of this analysis indicated that there was no evidence supporting significant adverse air quality impacts as a result of any of the eight issues. The analysis of the substitution issued did indicate that if significant levels of substitution occurred, the potential air quality benefits of the rule could be less than anticipated, although substitution is not anticipated for a variety of reasons as explained in the "Air Quality Impacts" section. The analysis of water resource impacts indicated that an incremental increase in the amount of wastewater from cleaning coating equipment could occur, but this increase did not exceed the SCAQMD's threshold of significance. The analysis of public facilities and transportation circulation concluded that PAR 1113 would not create any significant adverse impacts to these areas. The solid/hazardous waste analysis included an evaluation of the potential for an incremental increase in solid waste impacts resulting from some types of IM coatings have a shorter pot life, a shorter shelf life, and are less able to withstand freeze-thaw conditions than conventional coatings. A "worst-case" analysis was performed and determined that there could be an incremental increase in solid waste impacts, but this increase did not exceed the SCAQMD's threshold of significance. The analysis of hazard and human health impacts indicated that future compliant low-VOC coatings could be formulated with hazardous materials. Generally, solvents used in low-VOC coatings are typically less hazardous than solvents used in conventional coatings. Therefore, hazard impacts are considered to be insignificant. Further, because AIM coatings are typically applied in industrial settings where safety equipment, training, and procedures are in place, workplace exposures to potentially hazardous coatings would be minimal. In addition, because AIM coatings are applied on an as-needed basis, continuous exposures would not occur. As a result, no significant carcinogenic or non-carcinogenic hazard impacts are anticipated.

As can be seen by the information presented in this SEA, the proposed project would not result in irreversible environmental changes or the irretrievable commitment of resources.

Potential Growth-Inducing Impacts

CEQA Guidelines §15126.2(d) requires an environmental analysis to consider the "growth-inducing impact of the proposed action." Implementing PAR 1113 will not, by itself, have any direct or indirect growth-inducing impacts on businesses in the SCAQMD's jurisdiction because it is not expected to foster economic or population growth or the construction of additional housing and primarily affects existing coating formulation companies.

CONSISTENCY

The Southern California Association of Governments (SCAG) and the SCAQMD have developed, with input from representatives of local government, the industry community, public health agencies, the USEPA - Region IX and the California ARB, guidance on how to assess consistency within the existing general development planning process in the Basin. Pursuant to the development and adoption of its Regional Comprehensive Plan Guide (RCPG), SCAG has developed an Intergovernmental Review Procedures Handbook (June 1, 1995). The SCAQMD also adopted criteria for assessing consistency with regional plans and the AQMP in its CEQA Air Quality Handbook. The following sections address consistency between PAR 1113 and relevant regional plans pursuant to the SCAG Handbook and SCAQMD Handbook.

Consistency with the Air Quality Management Plan

PAR 1113 is consistent with the AQMP since it is specifically identified as a control measure that is necessary to attain and maintain the state and national ambient air quality standards.

Consistency with Regional Comprehensive Plan and Guide (RCPG) Policies

The RCPG provides the primary reference for SCAG's project review activity. The RCPG serves as a regional framework for decision making for the growth and change that is anticipated during the next 20 years and beyond. The Growth Management Chapter (GMC) of the RCPG contains population, housing, and jobs forecasts, which are adopted by SCAG's Regional Council and that reflect local plans and policies, shall be used by SCAG in all phases of implementation and review. The subsections summarize the main policies and goals contained in the GMC and whether or not PAR 1113 is consistent with these polices and goals

Improve the Regional Standard of Living

The Growth Management goals are to develop urban forms that enable individuals to spend less income on housing cost, that minimize public and private development costs, and that enable firms to be more competitive, which would strengthen the regional strategic goal to stimulate the regional economy. Proposed amended Rule 1113 in relation to the GMC would not interfere with the achievement of these goals, nor would it interfere with any powers exercised by local land use agencies to achieve these goals. PAR 1113 will not interfere with efforts to minimize red tape and expedite the permitting process to maintain economic vitality and competitiveness.

Provide Social, Political and Cultural Equity

The Growth Management goals are to develop urban forms that avoid economic and social polarization; promote the regional strategic goals of minimizing social and geographic disparities; and reach equity among all segments of society. Consistent with the Growth Management goals, local jurisdictions, employers and service agencies should provide adequate training and retraining of workers, and prepare the labor force to meet the challenges of the regional economy. Growth Management goals also includes encouraging employment development in job-poor localities through support of labor force retraining programs and other economic development measures. Local jurisdictions and other service providers are responsible to develop sustainable communities and provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, social services, recreational facilities, law enforcement, and fire protection. Implementing PAR 1113 is not expected to interfere with the goals of providing social, political and cultural equity.

Improve the Regional Quality of Life

The Growth Management goals also include attaining mobility and clean air goals and developing urban forms that enhance quality of life, accommodate a diversity of life styles, preserve open space and natural resources, are aesthetically pleasing, preserve the character of communities, and enhance the regional strategic goal of maintaining the regional quality of life. The RCPG encourages planned development in locations least likely to cause environmental impacts, as well as supports the protection of vital resources such as wetlands, groundwater recharge areas, woodlands, production lands, and land containing unique and endangered plants and animals. While encouraging the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites, the plan discourages development in areas with steep slopes, high fire, flood and seismic hazards, unless complying with special design requirements. Finally, the plan encourages mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and develop emergency response and recovery plans. Proposed amended Rule 1113 in relation to the GMC is not expected to interfere with attaining these goals and, in fact, promotes improving air quality in the region.

Consistency with Regional Mobility Plan (RMP) and Congestion Management Plan (CMP)

Proposed amended Rule 1113 is consistent with the RMP and CMP since no significant adverse impact to transportation/circulation will result from the additional regulation of coke, coal, and sulfur facilities within the district. While traffic and congestion is generated from the transport offsite of wastes for disposal or recycling, the construction and operation activities at affected facilities will not require a substantial increase number of employees. Furthermore, because affected facilities will not increase their handling capacities, there will not be an increase in material transport trips associated with the implementation of APR 1113. Therefore, material transport trips are not expected to significantly adversely affect circulation patterns.

CHAPTER 5

PROJECT ALTERNATIVES

INTRODUCTION

This Draft SEA provides a discussion of alternatives to the proposed project although not required under CEQA since no significant impacts have been found. Alternatives include measures for attaining the objectives of the proposed project and provide a means for evaluating the comparative merits of each alternative. A "No Project" alternative must also be evaluated. The range of alternatives must be sufficient to permit a reasoned choice, but need not include every conceivable project alternative. CEQA Guidelines §15126.6(a) specifically notes that the range of alternatives required in a CEQA document is governed by a 'rule of reason' and only necessitates that the CEQA document set forth those alternatives necessary to permit a reasoned choice. The key issue is whether the selection and discussion of alternatives fosters informed decision-making and meaningful public participation. A CEQA document need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. SCAQMD Rule 110 does not impose any greater requirements for a discussion of project alternatives in an environmental assessment than is required for an EIR under CEQA.

ALTERNATIVES REJECTED AS INFEASIBLE

A CEQA document should identify any alternatives that were considered by the lead agency, but were rejected as infeasible during the Scoping process and explain the reasons underlying the lead agency's determination (CEQA Guidelines §15126(d)(2)). The NOP/IS prepared for PAR 1113 included seven concepts that could possibly be further developed into project alternatives. Members of the Industry Working Group (see "Industry Working Group Meetings" discussion in Chapter 2 originally recommended most of these concepts. One of the concepts identified in the NOP/IS, product line averaging, has been incorporated as a component of PAR 1113. An alternative VOC content limit alternative has been further developed as Alternative B.

Upon further consideration and evaluation, some of the alternatives concepts originally identified by the Industry Working Group and included in the NOP/IS have been determined to be infeasible as the basis for a specific project alternative. These concepts and the rationale for rejecting them as infeasible are discussed in the following subsections.

Low Vapor Pressure (Low Volatility) Exemption

Under this alternative, VOC emission limits would be based on the volatility of affected coatings' VOC compounds rather than the VOC content of the coating. Thus, under this alternative, VOC compounds with low vapor pressures may be exempted as a VOC from the overall VOC content of the coating. This alternative has been rejected as infeasible as described in the following paragraphs.

Currently several solvents are used in consumer products and architectural coatings that are considered low volatility compounds, meaning that they have a vapor pressure of less than 0.1 mm of Hg at 20 degrees Celsius. Although CARB has included a low vapor pressure (LVP) exemption in their Consumer Products regulation, CARB staff indicates that the LVP exemption was placed into the proposed regulation because of specific additives found in consumer products, such as surfactants, paraffin's, and other heavier compounds that are typically washed away before they evaporate into the air. Furthermore, CARB has indicated that the LVP exemption was not intended to apply to solvents used in AIM coatings, since these solvents are intended to evaporate into the air. For that resin, CARB has not provided an LVP exemption in their aerosol paints rule.

USEPA also did not include an LVP exemption in the National AIM Rule and USEPA staff has communicated to the SCAQMD that they do not support an LVP exemption for the architectural coatings rule. USEPA staff concludes that any VOCs (non-exempt solvent species) that are included in the approved test method are considered to be part of the overall VOC content of the coating, and should not be exempted. Using the currently approved test method, testing of coatings containing some of the LVP solvents includes identifying some LVP solvents as VOCs. As a result, because a LVP exemption is not appropriate for paints, a low vapor pressure alternative is considered to be infeasible and, therefore, has not been included as a project alternative in this Draft SEA.

Performance-Based Standards

Members of the Industry Working Group also originally raised the concept for a performance-based rule provision or project alternative. Rather than establish lower VOC content requirements for specified categories of coatings, this alternative would establish emission standards based on performance standards such as emissions per area covered or coating durability.

This alternative was rejected as infeasible because no consensus could be reached on how to create a standard to cover the multitude of coating formulations with varying performance characteristics. For example, alkyd-based coating formulations for some applications currently have a life cycle of five to seven years, while urethane-based coating formulations for similar applications may have a life cycle of approximately 20 years. In this situation, the performance standard could be seven years, 20 years, or some time frame in-between these numbers. Agreement could not be reached concerning the appropriate standard for each type of coating technology. As a result, this alternative has been dropped from further consideration.

Reactivity-Based Alternative

This alternative would regulate coatings based upon the reactivity of the solvent used rather than establish VOC content requirements. A number of studies have been conducted in the field of atmospheric chemistry that conclude that many different types of VOCs are emitted into the atmosphere, each reacting at different rates. The architectural coatings industry has suggested that VOC control strategies taking reactivity into account can potentially achieve ozone reductions in a more cost-effective manner than strategies that reduce VOC mass emissions.

The use of reactivity as a regulatory tool has been debated at the local, state, and national level for over 20 years. Reactivity issues were thoroughly assessed during the VOC RECLAIM rule development process over a period of several years. The results were inconclusive.

The use of reactivity as a regulatory tool has been debated at the local, state, and national level for over 20 years. For example, CARB incorporated a reactivity-based control strategy into its California Clean Fuel/Low Emissions Vehicle regulations, where reactivity adjustment factors are employed to place regulations of exhaust emissions from vehicles using alternative fuels on an equal ozone impact basis. CARB is evaluating a similar strategy for consumer products and industrial emissions, and contracted with Dr. William Carter, University of California at Riverside, Center for Environmental Research and Technology, College of Engineering, for a two-year study to assess the reactivities of VOC species found in the consumer products emissions inventory. Dr. Carter, one of the principal researchers of reactivities of various VOC species, plans to further study VOC species, more specifically glycol ethers, esters, isopropyl alcohol, MEK, and an octanol, since these are typically found in either waterborne coatings, solvent-borne coatings, or both. These specific VOCs have been prioritized based on emissions inventory estimates, mechanistic uncertainties, and lack of information in the current reactivity data. Under the current models and ozone chamber studies, however, Dr. Carter has been unable to assess the reactivity of low volatility compounds, and has not succeeded in reducing the uncertainties of key VOC species used in AIM coatings. He did identify the state of science with respect to VOC reactivity and described areas where additional work is needed in order to reduce the uncertainty associated with different approaches to assessing reactivity.

Another factor to be considered in the reactivity based approach, and probably the most important, is an accurate speciation profile of waterborne and solvent-borne coatings. CARB, in its effort to get more detailed information about the speciation profiles, required speciation profiles of all coatings included in the 1998 CARB Survey. The results of the speciation data are still under evaluation, and could potentially be used for future reactivity-based architectural coatings control.

In addition to the uncertainties associated with speciation profiles for all coatings, the following uncertainty factors that must be addressed prior to any rule making based on reactivity:

- Ozone impacts of VOCs depend on the environment where the VOC is being emitted;
- The variability or uncertainty in the chemical composition of the VOC source being considered; and
- The complexity and uncertainties in the atmospheric processes by which emitted VOCs react to form ozone

Although the science of VOC reactivity has matured over the past few years, more comprehensive studies are still being conducted to resolve the uncertainties of reactivity data. The experts in the field, including Dr. Carter, have indicated the need to improve estimates of atmospheric ozone reactivity factors for selected major classes of compounds in the consumer product emissions inventory. They also feel the need to improve the quantification of the uncertainty ranges of atmospheric reactivity factors for the classes of species typically found in coatings. In the near future, with funding from USEPA and private sources, a new, state-of-the-art ozone chamber will be developed and used for future studies. It was agreed at a March 1, 2001 CARB meeting that first two compounds to be modeled in the ozone chamber would be texanol ester alcohol and mineral spirits because they were at the top of the usage list from CARB's surveys. Furthermore, the architectural coatings industry is funding additional studies to further understand the mechanistic and kinetic reactivities of different VOC species. The results of all the aforementioned research and studies will be invaluable in determining the extent to which a reactivity based approach can be relied on for regulating VOC emissions from the application of coatings and the use of solvents.

In its Report to Congress on a Study of Volatile Organic Compound Emissions from Consumer and Commercial Products (EPA-453/R-94-066-A), USEPA also supported the reactivity-based approach, but also stated, "Because of uncertainties, inconsistencies, and lack of reactivity data on individual compounds, ... a rigorous determination of the potential of consumer and commercial products to contribute to ozone nonattainment is not possible at this time ... If, in the future, sufficient information or new methodologies become available, the EPA may reevaluate this finding." As a result, EPA is regulating AIM coatings based upon VOC content and not reactivity.

Based on the current state of information, there is insufficient evidence to conclude that waterborne coatings actually contain more reactive solvents than solvent-based coatings. As a result, the SCAQMD believes that a reactivity-based alternative is not a feasible alternative at this time because there is not enough data or other information available to support such an alternative because atmospheric science data available are incomplete. However, the SCAQMD does support continued research that would enhance the state of science in this field. To that end, PAR 1113 includes a provision that commits the Executive Officer to conduct a study to further access the reactivity of architectural coatings.

Regional Deregulation

Areas in the district that do not have an ozone problem or contribute to the SCAQMD's ozone problem would be exempted from the VOC content requirements of the proposed amendments. This alternative was rejected as infeasible for the reasons specified in the following paragraphs.

A similar concept to regional deregulation (geographic shift control strategy) was considered as a project alternative to the 1997 AQMP. For this AQMP alternative, air quality modeling was performed to determine its viability. The results of the analysis indicated that the geographical shift alternative was difficult to model because the model is dependent on meteorological conditions. For example, depending on the meteorological conditions used, it was difficult to determine whether or not an excellence in one source receptor area (SRA) was due to the emissions sources in that SRA or the result of wind conditions in which emissions from an upwind SRA were transported to a second SRA, causing a violation in the second SRA.

As indicated in the preceding paragraph, ozone is a regional problem, not a localized problem, and is affected by high ambient NOx concentrations. Although the district currently is in attainment with both the national and California ambient air quality standards for NO2, ambient NOx concentrations are sufficiently high that this alternative would not contribute appreciably towards attaining the national or California ambient air quality standards for ozone. For this reason and the reason cited in the preceding paragraph, the regional deregulation alternative is not considered to be a feasible alternative.

Seasonal Regulation

The low-VOC content limits proposed for various coatings in PAR 1113 would only be in effect during the "high ozone season" (i.e., typically the summer months). During the "low ozone season" (i.e., typically the winter months), coatings subject to the currently proposed amendments with higher VOC content limits could be used. A comment was made in one of the comment letters received on the NOP/IS that this alternative might not be feasible for coatings used "on large-scale, long-term new construction and maintenance projects – where the work of many trades is coordinated through a "critical path" schedule –" and coatings used for low-volume touch-up and repair work.

Based on discussions with industry, staff has determined that this alternative is infeasible because it may be difficult for coatings distributors to manage architectural coating stocks to ensure that only compliant coatings are sold during the high ozone season. As a result, this alternative is rejected as infeasible due to this lack of enforceability.

DESCRIPTION OF ALTERNATIVES

The rationale for selecting and modifying specific components of the proposed amendments to generate feasible alternatives for analysis is based on CEQA's requirement to present "realistic" alternatives; that is, alternatives that can actually be implemented. The following alternatives were developed by identifying and modifying major components of PAR 1113. Specifically, the primary components of the proposed alternatives that have been modified are the interim compliance dates, the final compliance dates, and the range of exemptions. In general, the range of alternatives to PAR 1113 is relatively limited because the technology and data regarding alternative approaches is limited or not well understood as explained in the above "Alternatives Rejected as Infeasible" section. Further, the final VOC content limit requirements are driven by the VOC emission reductions identified in the 1997 AQMP control measure CTS-07, which are necessary if the district is to attain and maintain the state and national ambient air quality standards for ozone.

Table 5-1 identifies the major components of PAR 1113 and each of the project alternatives. All other components of PAR 1113 not identified in the following subsections or in Table 5-1 would also be included in the proposed project alternatives.

Alternative A - No Project

This alternative assumes that the proposed amendments to Rule 1113 will not be adopted. Existing Rule 1113 would remain in effect with no modifications. As a result, VOC emissions from architectural coatings would not be further reduced to meet 1997 AQMP goals.

Alternative B – Extended Final Compliance Alternative

Alternative B would extend the compliance date for final VOC content limits to January 1, 2008. The interim and the final VOC content limits for affected coatings would be identical to those proposed for PAR 1113.

TABLE 5-1

PAR 1113 AND PROJECT ALTERNATIVES[1]

Coating Category	Alternative A – No Project	Proposed Amended Rule 1113		Alternative B – Extended Final Compliance		Alternative C – No Final IM/RP VOC Content Limit [1]	
	Current Limit (G/L)	Proposed Limit (G/L)	Compliance Dates	Proposed Limit (G/L)	Compliance Dates	Proposed Limit (G/L)	Compliance Dates
Bituminous Roof Coatings	300	~~250~~	~~01/01/03~~	250	01/01/03	250	01/01/03
Chemical Storage Tank	420	~~100~~	~~07/01/06~~	100	07/01/08	100	07/01/06
Essential Public Service Coating	420	~~340~~	~~01/01/03~~	340	01/01/03	340	01/01/03
		~~100~~	~~07/01/06~~	100	07/01/08	100	07/01/06
Floor Coatings	420	100	01/01/03	100	01/01/03	250	01/01/03
		50	07/01/06	50	01/01/08	50	07/01/06
Industrial Maintenance (IM) Coatings	420	250	01/01/~~03~~ *04*	250	01/01/03	250	01/01/04
		100	07/01/06	100	01/01/08		
High Temp. IM Coatings	No Limit	~~550~~	~~01/01/03~~	550	01/01/03	420	01/01/03
		420	~~07/01/06~~ *01/01/03*	420	07/01/06		
Non-Flat	250	150	01/01/03	150	01/01/03	150 250[3]	01/01/03
		50	07/01/06	50	01/01/08	50	07/01/06
Quick-Dry Enamel	400	250	01/01/03	250	01/01/03	250	01/01/03
		50	07/01/06	50	01/01/08	50	07/01/06
PSU	350	200	01/01/03	200	01/01/03	200	01/01/03
		100	07/01/06	100	01/01/08	100	07/01/06
Quick-Dry PSU	350[2]	200	01/01/03	200	01/01/03	200	01/01/03
		100	07/01/06	100	01/01/08	100	07/01/06
Recycled Flat and Nonflats	250	100	07/01/06	100	01/01/08	100	07/01/06
Rust Preventative	400	100	07/01/06	100	01/01/08	400	date of rule adoption
Specialty Primers	350	100	07/01/06	100	01/01/08	100[4]	07/01/06
Stains	350	250	01/01/03	250	01/01/03	250	01/01/03
Water-Proofing Wood Sealers	400	250	01/01/03	250	01/01/08	250	01/01/03

1) In *Proposed Project and* Alternative C, swimming pool repair coating would be lowered to 340 as of 01/01/03
2) Currently exempt if manufacturers report sales data
3) Higher interim limit for High Gloss Non-flats (defined as registering a gloss of 70 or above on a 60-degree meter)

4) For Alternative C, specialty primers includes those that block stains

Alternative C – No Final VOC Limit for IM or Rust Preventive Coatings

Alternative C would not further reduce the interim VOC content limit of 250 g/l or 400 g/l for IM and rust preventative (RP) coatings, respectively. IM coatings would not need to comply until January 1, 2004 and RP coatings would only have to comply with the current VOC content limit. Floor coatings and high gloss non-flats (registers a gloss of 70 or above on a 60-degree meter) would be allowed a higher interim limit of 250 g/l and the definition of specialty primers would include those primers that block stains (the final limits and compliance dates would stay the same as the proposed project). Swimming pool repair coating and high temperature IM coatings would be lowered to 340 g/l and 420 g/l, respectively. The other proposed changes in PAR 1113 would be maintained.

COMPARISON OF THE ALTERNATIVES

The Initial Study (see Appendix B) identified those environmental topics where the PAR 1113 could cause adverse environmental impacts. Further evaluation of these topics and other identified topics in Chapter 4 of this Draft SEA reveals that there are no significant impacts from the implementation of PAR 1113.

The following subsections briefly describe potential adverse environmental impacts that may be generated by each project alternative. Each environmental topic summary contains a brief description of the environmental impacts for each project alternative compared to impacts resulting from implementing the proposed amendments. Potential impacts for the environmental topics are quantified, where sufficient data are available. A comparison of the impacts for each of the environmental topics is summarized in Table 5-3 and the alternatives are ranked according to severity of potential adverse environmental impacts in Table 5-4.

Air Quality

Alternative A - No Project

This alternative assumes that the proposed amendments to Rule 1113 will not be adopted. Existing Rule 1113 would remain in effect with no modifications. As a result, approximately 20 tons per day of VOC emissions from architectural coatings would not be further reduced to meet 1997 AQMP goals, thus, jeopardizing the district's ability to meet and maintain federal and state ozone standards by the year 2010.

Alternative B – Extended Compliance

Alternative B would extend the final VOC content limits to January 1, 2008. The final

VOC content limits for affected coatings would be identical to those proposed for PAR 1113. As shown in Table 5-2, assuming no sell through, this alternative would result in estimated daily VOC emission reductions by the year 2010 of 21.8 tons per day. During the interim years, Alternative B, ~~similar to the proposed project~~, would allow a higher VOC content limit for essential public service coatings, which will result in an estimated 27 pounds per day of foregone emission reductions. This alternative would ultimately achieve the same VOC emission reductions as PAR 1113. However, the VOC emission reductions would be achieved two years later for the final year. Thus, missing some of the 1997 AQMP targets for VOC emission reductions.

Alternative C – No Final IM or RP VOC Content Limit

This alternative would omit the proposed final VOC content limits for IM and RP coatings. Alternative C would allow the interim VOC content for IM and RP coatings to remain at 250 g/l and 400 g/l, respectively, and increase the interim limit for floor coatings and high gloss nonflats to 250 g/l. Thus, the emission reductions are lower due to higher interim limits for floor coatings and high gloss nonflats. The emission reductions from the high temperature IM coatings are minimal. Due to the small amount used, the emission reductions from swimming pool repair coating are considered negligible. All other proposed VOC content limit changes in PAR 1113 would be maintained. As shown in Table 5-2, assuming no sell through, this alternative would result in estimated daily VOC emission reductions by the year 2010 of 18.25 tons per day. This alternative would ultimately achieve 3.55 tons per day less VOC emission reductions than the proposed project because the final VOC content limits for IM and RP coatings is never reached. However, this loss of 3.55 tons per day less VOC emission reductions would have to be made up in other VOC emission sources, which may not be feasible for some VOC sources.

Emission Reductions from PAR 1113 and Alternatives

It should noted that all of the alternatives, except Alternative A, will reduce VOC emissions from affected AIM coating categories. Table 5-2 highlights the estimated emission reductions from PAR 1113 and each project alternative.

TABLE 5-2

Comparison VOC Emission Reductions
From PAR 1113 and the Project Alternatives (pounds per day)

Year Reductions Achieved	PAR 1113	Alternative A (No Project)	Alternative B (Extended Final Compliance)	Alternative C (No Final IM//RP VOC Content Limit)
2003	19,593	0	19,593	11,780
2004	Œ	0	Œ	11,780 + 5,800
2006	23,980+19,593+~~27~~	0	Œ	18,893 + 11,780 + 5,800 + 27
2008	Œ	0	23,980+19,593+27	Œ
2010+	Œ	0	Œ	Œ
TOTAL*	**~~43,600~~** *43,573*	**0**	**43,600**	**36,500**
Tons/Day	**21.8**	**0**	**21.8**	**18.25**

* Assumed 365 operational days per year
Œ = Same amount of VOC emission reduction obtained as previous years.

Water Resources

Water Demand

Alternative A assumes that PAR 1113 will not be adopted. The water demand impacts associated with the use of current coatings would remain constant under the No Project Alternative. As a result of not implementing the proposed VOC content limits, which are anticipated to be met predominately through water-borne technology, this alternative would have less water demand impacts compared to the proposed project. Thus, Alternative A would not create any new or additional water demand impacts.

Alternative B would extend the final VOC content limits to January 1, 2008. Therefore, the water demand impacts will be slightly greater than PAR 1113, but not significant. Since the affected coating categories will be reformulated with the same water-borne technology to meet the interim and final VOC content limits, this alternative would result in similar insignificant water demand impacts as the proposed project.

Alternative C would omit the proposed final VOC content limits for IM and RP coatings. This alternative would allow the interim VOC content for IM and RP coatings to remain at 250 g/l and 400 g/l, respectively. As a result of having a higher interim VOC content limit of 250 g/l for floor coatings and not implementing the proposed final VOC content limit for IM and RP coatings of 100 g/l, which is anticipated to be met through water-borne technology, Alternative C would have insignificant water demand impacts, which would be slightly less than water demand impacts resulting from PAR 1113.

Water Quality

Alternative A assumes that PAR 1113 will not be adopted. No change in the current quantities of coatings entering the sewer systems, storm drainage systems, or groundwater within the district should occur under the No Project Alternative because current practices are expected to be maintained. Thus, Alternative A would not create any new or additional water quality impacts.

Alternative B would extend the final VOC content limits to January 1, 2008. However, the same low-VOC technology used to meet the PAR 1113 final VOC content limits will be used to meet the later Alternative B final VOC content limits. Therefore, Alternative B would result in similar insignificant water quality impacts (e.g., wastewater, storm water, and groundwater) as the proposed project.

Alternative C would omit the proposed final VOC content limits for IM and RP coatings. The interim VOC content limits for floor coatings and high gloss non-flats of 250 g/l, IM of 250 g/l and RP of 400 g/l, which can be met by both solvent-borne and water-borne technology, would remain in place after the year 2003. Thus, the further use of water-borne technology to meet the lower VOC content limits of PAR 1113 for these coating categories is not required. Since there will be no incremental increase in the use of water-borne technology for these coatings at the final compliance deadline, the generation of wastewater from the clean up of water-borne technology will not occur. Therefore, water quality impacts associated with Alternative C would be less than those associated with implementation of PAR 1113 and, therefore, insignificant.

Public Services

Public Facility Maintenance

The No Project Alternative would not require any changes to coating application practices done for maintenance purposes at public facilities. Thus, Alternative A would not create any new or additional public service impacts.

Alternative B would extend the final VOC content limits to January 1, 2008. However, the same low-VOC technology used to meet the PAR 1113 interim and VOC content limits will be used to meet the later Alternative B interim and final VOC content limits. Therefore, Alternative B would result in similar insignificant public services impacts (e.g., maintenance at public facilities) as the proposed project.

Alternative C would omit the proposed final VOC content limits for IM and RP coatings. The interim VOC content limits for floor coatings and high gloss non-flats of 250 g/l, IM of 250 g/l and RP of 400 g/l, which can be met by both solvent-borne and water-borne technology, would remain in place after the year 2003. As a result, end-users will be allowed to use RP coatings with a higher VOC content based on alkyd or acrylic technology, which currently perform satisfactorily at a VOC content of 400 g/l[11]. Therefore, the public services impacts associated with Alternative C are less than those associated with implementation of PAR 1113.

Fire Departments

The No Project Alternative will not change the current impacts on fire departments. The current Rule 1113 VOC content limits would allow the continued use of coatings that contain flammable solvents such as toluene, xylene, MEK, mineral spirits, and others. To comply with the interim and final VOC content limits in PAR 1113, it is expected that coating formulators will use predominantly water-borne technology containing less flammable solvents. Therefore, the continued use of flammable solvents such as toluene, xylene, MEK, and mineral spirits would maintain the current level of impacts to fire department responding to flammable coating incidents compared to a slight reduction in impacts to fire departments expected from the implementation of the proposed project.

Alternative B would extend the final VOC content limits to January 1, 2008. However, the same replacement and coalescing solvents used to meet the PAR 1113 final VOC content limits would be used to meet the Alternative B final VOC content limits. Therefore, Alternative B would result in similar insignificant public services impacts (e.g., fire departments) as PAR 1113.

Alternative C would omit the proposed final VOC content limits for IM and RP coatings. The interim VOC content limits for floor coatings and high gloss non-flats of 250 g/l, IM of 250 g/l and RP of 400 g/l, which can be met by both solvent-borne and water-borne technology, would remain in place after the year 2003. Since under Alternative C IM and RP coatings will not be required to meet the final VOC content limits of PAR 1113, formulators will not be required to reformulate solvent-borne technology containing more flammable solvents, with water-borne technology containing less flammable solvents (e.g., diisocyanates, texanol, propylene glycol, and ethylene glycol). Therefore, Alternative C not generate significant adverse impacts to fire departments, although the beneficial effects of this alternative would be less than those expected from the implementation of PAR 1113.

[11] Since this alternative maintains all of the other rule requirements of PAR 1113, IM coatings would be prohibited for use at public facilities.

Transportation / Circulation

The No Project Alternative would not require any changes to existing coating manufacturing processes or coating application practices. The volume of traffic or traffic circulation patterns associated with the manufacturing, distribution, and use of AIM coatings would not change under Alternative A. Thus, Alternative A would not affect existing patterns of transportation/circulation in any way.

Alternative B would extend the final VOC content limits to January 1, 2008. However, the same replacement and coalescing solvents used to meet the PAR 1113 final VOC content limits would be used to meet the Alternative B final VOC content limits. Therefore, Alternative B would result in similar insignificant transportation/circulation impacts as the proposed project.

Alternative C would omit the proposed final VOC content limits for IM and RP coatings. The interim VOC content limits for floor coatings and high gloss non-flats of 250 g/l, IM of 250 g/l and RP of 400 g/l would remain in place after the year 2003. Since under Alternative C IM and RP coatings will not be required to meet the final VOC content limits of PAR 1113, formulators will not be required to further reformulate these coatings with water-borne technology. Thus, any potential additional trips associated with the disposal of reformulated low-VOC water-borne IM and RP coatings due to freeze–thaw, shelf-life, or pot life problems will be less than PAR 1113. Therefore, Alternative C would result in slightly less transportation/circulation impacts than would be expected from the implementation of PAR 1113

Solid / Hazardous Waste

The No Project Alternative would not require any changes to existing coating manufacturing processes or coating application practices. The volume of solid/hazardous waste generated from the manufacturing, distribution, and use of AIM coatings would not change under Alternative A. Thus, Alternative A would not create any new or additional solid/hazardous waste impacts.

Alternative B would extend the final VOC content limits to January 1, 2008. However, the same replacement and coalescing solvents used to meet the PAR 1113 final VOC content limits would be used to meet the Alternative B final VOC content limits. Therefore, Alternative B would result in similar insignificant solid/hazardous waste impacts as PAR 1113.

Alternative C would omit the proposed final VOC content limits for IM and RP coatings. The interim VOC content limits for floor coatings and high gloss non-flats of 250 g/l, IM of 250 g/l and RP of 400 g/l would remain in place after the year 2003. Since under

Alternative C IM and RP coatings will not be required to meet the final VOC content limits of PAR 1113, formulators will not be required to further reformulate these coatings with water-borne technology. Thus, any potential additional coatings landfilled as a result freeze–thaw, shelf life, or pot life problems associated with the use of reformulated low-VOC water-borne IM and RP coatings will be less than PAR 1113. Therefore, Alternative C would result in slightly less solid/hazardous waste impacts than would be expected from the implementation of PAR 1113

Hazards

The No Project Alternative will not change the current hazards impacts. The current Rule 1113 VOC content limits would allow the continued use of coatings that contain toxics such as toluene, xylene, MEK, EGBE, and others. The continued use of these toxic and flammable solvents when balanced against the use of toxic solvents such as TDI, MDI, HDI, which are less flammable, to meet the interim and final VOC content limits of PAR 1113 would maintain any existing hazards associated with currently available high VOC coatings.

Alternative B would extend the final VOC content limits to January 1, 2008. However, the same replacement and coalescing solvents used to meet the PAR 1113 final VOC content limits would be used to meet the Alternative B final VOC content limits. Therefore, Alternative B would result in similar insignificant hazards impacts as the proposed project.

Alternative C would omit the proposed final VOC content limits for IM and RP coatings. The interim VOC content limits for floor coatings and high gloss non-flats of 250 g/l, IM of 250 g/l and RP of 400 g/l, which can be met by both solvent-borne and water-borne technology, would remain in place after the year 2003. Coating formulators would not be required under this alternative to further reformulate with water-borne technology to meet the interim VOC content limits for floor coatings and final VOC content limits in PAR 1113 for IM and RP coatings. In the context of RP coatings, coating formulators would not be replacing current coalescing solvents, such as EGBE, with less toxic and less flammable solvents such as texanol, propylene glycol, and ethylene glycol in their water-borne formulations. Conversely, in the context of IM coatings, coating formulators would not be incrementally increasing the use of two-component polyurethane water-borne systems containing toxic solvents such as TDI, HDI, and MDI. Therefore, when balancing the loss of replacement solvents that are less toxic and less flammable against the incremental increase in the use of coatings containing more toxic solvents, Alternative C would result in similar insignificant hazards impacts as the proposed project.

Human Health

The No Project Alternative will not change the current human health impacts. The current Rule 1113 VOC content limits would allow the continued use of coatings that contain toxics such as toluene, xylene, MEK, EGBE, and others. The use of these toxic solvents when balanced against the use of toxic solvents such as TDI, MDI, HDI to meet the interim and final VOC content limits of PAR 1113 maintain any existing human health impacts associated with currently available high VOC coatings.

Alternative B would extend the final VOC content limits to January 1, 2008. It is anticipated that the same replacement and coalescing solvents used to meet the PAR 1113 final VOC content limits would be used to meet the Alternative B final VOC content limits. However, in the context of compliant two-component water-borne IM systems containing TDI, HDI, MDI, since formulators have an additional three years to develop coatings they may be able to formulate systems containing less toxic compounds or develop better application techniques to further reduce exposure to these compounds. Therefore, Alternative B would result in slightly less insignificant human health impacts as compared to PAR 1113.

Alternative C would omit the proposed final VOC content limits for IM and RP coatings. The interim VOC content limits for floor coatings and high gloss non-flats of 250 g/l, IM of 250 g/l and RP of 400 g/l, which can be met by both solvent-borne and water-borne technology, would remain in place after the year 2003. Coating formulators would not be required under this alternative to further reformulate with water-borne technology to meet the final VOC content limits in PAR 1113. In the context of RP coatings, coating formulators would not be replacing current coalescing solvents such as EGBE with less toxic solvents such as texanol, propylene glycol, and ethylene glycol in their water-borne formulations. Conversely, in the context of IM coatings, coating formulators would not be incrementally increasing the use of two component polyurethane water-borne systems containing toxic solvents such as TDI, HDI, and MDI. Therefore, when balancing the loss of replacement solvents that are less toxic against maintaining the use of coatings containing more toxic solvents, Alternative C would result in similar insignificant hazards impacts as the proposed project.

CONCLUSION

Pursuant to CEQA Guidelines §15126.6 (d), a matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. Table 5-3 lists the alternatives considered by the SCAQMD and how they compare to PAR 1113 relative to generating adverse environmental impacts. Table 5-4 presents a matrix that lists the significant adverse impacts as well as the cumulative impacts associated with the proposed project and the project alternatives for all environmental topics analyzed. The table also ranks each impact section as to whether the proposed project or a project alternative would result in greater or lesser impacts relative to one another.

Pursuant to CEQA Guidelines §15126.6 (e)(2), if the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. Since the No Project alternative (Alternative A) would not ultimately achieve the long-term air quality benefits (e.g., VOC reductions) of PAR 1113, it is not the environmentally superior alternative.

TABLE 5-3

Comparison of Adverse Environmental Impacts of PAR 1113 to the Alternatives

Environmental Topic	**Alternative A** (No Project)	**Alternative B** (Extended Compliance Deadlines)	**Alternative C** (No Final IM//RP VOC Content Limits)	**Mitigation Measures**
Air Quality	Not Significant (loss of VOC emission reductions)	Not Significant (loss of VOC emission reductions in interim years)	Not Significant (loss of VOC emission reductions)	None Required
Water Resources				
Water Demand	Not Significant, less than PAR 1113	Not Significant, equivalent to PAR 1113	Not Significant, less than PAR 1113	None Required
Water Quality	Not Significant, less than PAR 1113	Not Significant, equivalent to PAR 1113	Not Significant, less than PAR 1113	None Required
Public Services				
Public Facility Maintenance	Not Significant, less than PAR 1113	Not Significant, equivalent to PAR 1113	Not Significant, less than PAR 1113	None Required
Fire Department	Not Significant, greater than PAR 1113	Not Significant, equivalent to PAR 1113	Not Significant, greater than PAR 1113	None Required
Transportation/ Circulation	Not Significant, less than PAR 1113	Not Significant, equivalent to PAR 1113	Not Significant, less than PAR 1113	None Required
Solid/Hazardous Waste	Not Significant, less than PAR 1113	Not Significant, equivalent to PAR 1113	Not significant, less than PAR 1113	None Required
Hazards	Not Significant, equivalent to PAR 1113	Not Significant, equivalent to PAR 1113	Not Significant, equivalent to PAR 1113	None Required
Human Health	Not Significant, greater than PAR 1113	Not Significant, equivalent to PAR 1113	Not Significant, greater than PAR 1113	None Required

TABLE 5-4

Ranking of Alternatives

Project/ Alts	Air Quality Impacts		Water Demand Impacts		Water Quality Impacts		Public Facility Maintenance Impacts		Fire Department Impacts		Transportation/ Circulation Impacts		Solid/Hazardous Waste Impacts		Hazards Impacts		Human Health	
	Proj.	Cum.	Proj.	Cum.	Proj.	Cum.	Proj.	Cum.	Proj.	Cum.	Proj.	Cum.	Proj.	Cum.	Proj.	Cum.	Proj.	Cum.
PAR 1113	*(1)*		*(3)*		*(3)*		*(3)*		*(1)*		*(3)*		*(3)*		*(1)*		*(2)*	
Alt. A	*(4)*		*(1)*		*(1)*		*(1)*		*(3)*		*(1)*		*(1)*		*(1)*		*(2)*	
Alt. B	*(2)*		*(3)*		*(3)*		*(3)*		*(1)*		*(3)*		*(3)*		*(1)*		*(1)*	
Alt. C	*(3)*		*(2)*		*(2)*		*(2)*		*(2)*		*(2)*		*(2)*		*(1)*		*(2)*	

Notes: The ranking scale is such that 1 represents the least impacts and subsequent higher number represent increasingly higher worse impacts.
The same two numbers in brackets for a specific Impact Section means that these proposals would have the same impacts if implemented.
An X denotes either a project-specific significant adverse impact or cumulative significant adverse impact.
A denotes no significant adverse impact or no cumulative significant adverse impact.

Proj. = Project-Specific Impacts
Cum. = Cumulative Impacts

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APPENDIX A

PROPOSED AMENDED RULE 1113

In order to save space and avoid repetition, please refer to the latest version of the proposed amended Rule 1113 located elsewhere in the rule package. The version "PAR-1113A" (November 1, 2002) of the proposed amended rule was circulated with the Draft Subsequent Environmental Assessment (DSEA) that was released on August 6, 2002 for a 30-day public review and comment period ending September 4, 2002.

Original hard copies of the DSEA, which include the version "PAR-1113A" (November 1, 2002) of the proposed amended rule, can be obtained through the SCAQMD Public Information Center at the Diamond Bar headquarters or by calling (909) 396-2039.

APPENDIX B

NOTICE OF PREPARATION AND INITIAL STUDY

October 27, 1998

SUBJECT: **NOTICE OF PREPARATION OF A DRAFT SUBSEQUENT ENVIRONMENTAL ASSESSMENT**

PROJECT TITLE: **PROPOSED AMENDMENTS TO RULE 1113: ARCHITECTURAL COATINGS**

In accordance with the California Environmental Quality Act (CEQA), the South Coast Air Quality Management District (SCAQMD) is the Lead Agency and will prepare a subsequent environmental assessment (SEA) for the project identified above pursuant to its certified regulatory program (SCAQMD Rule 110). This project was previously considered in the SCAQMD's 1997 AQMP and associated Program Environmental Impact Report (EIR) as well as the 1990 Environmental Assessment (EA) for amended Rule 1113. The proposed amended rule will reduce VOC emissions from certain architectural coatings. The purpose of this Notice of Preparation (NOP) is to inform appropriate government agencies that a Draft SEA is being prepared, and to solicit comments on the environmental areas within each agency's jurisdiction.

In conjunction with the development of the proposed amended rule, it is necessary to address the affects of the proposed amended rule on the environment. The SCAQMD is preparing appropriate environmental analyses consistent with CEQA. This NOP serves two purposes: to solicit information on the scope of the environmental analysis for the proposed project and notify the public that the SCAQMD will prepare a Draft SEA to the 1997 AQMP EIR and 1990 EA to assess potential environmental impacts that may result from implementing the proposed amended rule. If potential adverse impacts are identified, the Draft SEA will also discuss feasible mitigation measures to reduce potential significant adverse environmental impacts. The Draft SEA will also include a discussion of all other topics required by CEQA.

The attached materials are not SCAQMD applications or forms requiring a response from you. Their purpose is simply to provide information to you on the above project. If the proposed project has no bearing on you or your organization, no action on your part is necessary.

The project's description, location, and potential environmental impacts are described in the Initial Study for the proposed project that is attached to this NOP. This NOP and Initial Study are available for a 30-day review and comment period. Comments focusing on your area of expertise, your agency's area of jurisdiction, or scope of the project alternatives should be addressed to Mr. Darren W. Stroud (c/o Office of Planning, Transportation and Information Management) at the address shown above, or sent by FAX to (909) 396-3324. Comments must be received no later than 5:00 PM on December 1, 1998. Please include the name and phone number of the contact person for your agency.

Project Applicant: N/A

Date: October 27, 1998 **Signature**: Steve Smith

Steve Smith

Title: Program Supervisor

Telephone: (909) 396-3054

Reference: California Code of Regulations, Title 14, Sections 15082(a), 15103, and 15375

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

INITIAL STUDY FOR THE DRAFT SUBSEQUENT ENVIRONMENTAL ASSESSMENT FOR:

PROPOSED AMENDED RULE (PAR) 1113 - ARCHITECTURAL COATINGS

October 27, 1998

Director
Planning and Policy
Elaine Chang, Dr.PH.

Planning Manager
Planning and Policy
Henry Hogo

Author: Darren W. Stroud - Air Quality Specialist

Reviewed by: Steve Smith, Ph.D. - Program Supervisor
Bill Wong – Senior Deputy District Counsel

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD

BARRY R. WALLERSTEIN, D.Env.

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CHAPTER 1

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INTRODUCTION

The proposed amended Rule (PAR) 1113 – Architectural Coatings, is a "project" as defined by the California Environmental Quality Act (CEQA). California Public Resources Code §21080.5 allows public agencies with regulatory programs to prepare a plan or other written document in lieu of an environmental impact report once the Secretary of the Resources Agency has certified the regulatory program. The South Coast Air Quality Management District's (SCAQMD) regulatory program was certified by the Secretary of the Resources Agency on March 1, 1989, and is codified as SCAQMD Rule 110. Pursuant to Rule 110 (the rule which implements the SCAQMD's certified regulatory program), SCAQMD is preparing a Draft Subsequent Environmental Assessment (SEA) to evaluate potential adverse impacts from amending Rule 1113.

CEQA requires that the potential adverse environmental impacts of proposed projects be evaluated and that methods to reduce or avoid identified significant adverse environmental impacts of these projects be implemented if feasible. The purpose of the Draft SEA is to inform the SCAQMD's Governing Board, public agencies, and interested parties of potentially significant adverse environmental impacts that could result from implementing the proposed project.

This Initial Study is intended to provide information about the proposed project to other public agencies and interested parties prior to the release of the Draft SEA. The Initial Study is being released for a 30-day review period. Written comments on the scope of the environmental analysis and possible project alternatives received by the SCAQMD during the 30-day review period will be considered when preparing the Draft EA.

The SCAQMD was created by the California legislature in 1977[1] as the public agency responsible for developing and enforcing air pollution control regulations in the areas within its jurisdiction. By statute, the SCAQMD is required to adopt or amend and enforce rules that will reduce air pollutant emissions in order to attain and maintain federal and state ambient air quality standards. If the area within SCAQMD's jurisdiction is to comply with the state and federal ambient air quality standards for ozone, further reductions from sources that generate volatile organic compounds (VOCs) are required.

Unlike primary criteria pollutants that are emitted directly from an emission source, ozone is a secondary pollutant. It is formed in the atmosphere through photochemical reactions of VOC, NO_x, and other hydrocarbon materials with sunlight. Ozone is a deep lung irritant, causing air passages to become inflamed and swollen. Exposure to ozone

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[1] The Lewis-Presley Air Quality Management Act, 1976 Cal. Stat. ch. 324 (codified at H & S Code, Sections 40400 - 40540).

produces alterations in respiration, the most characteristic of which is shallow, rapid breathing and a decrease in pulmonary performance. Ozone reduces the respiratory system's ability to fight infection and to remove foreign particles. People who suffer from respiratory diseases such as asthma, emphysema, and chronic bronchitis are more sensitive to ozone's effects. In severe cases, ozone is capable of causing death from pulmonary edema. Early studies suggested that long-term exposure to ozone results in adverse effects on morphology and function of the lung and acceleration of lung-tumor formation and aging. Ozone exposure also increases the sensitivity of the lung to bronchoconstrictive agents such as histamine, acetylcholine, and allergens.

It should be noted that there are no state or federal ambient air quality standards for VOCs because they are not classified as criteria pollutants. VOCs are regulated, however, because a reduction in VOC emissions reduces certain chemical reactions that contribute to the formation of ozone. VOCs are also transformed into organic aerosols in the atmosphere, contributing to higher PM10 and lower visibility levels.

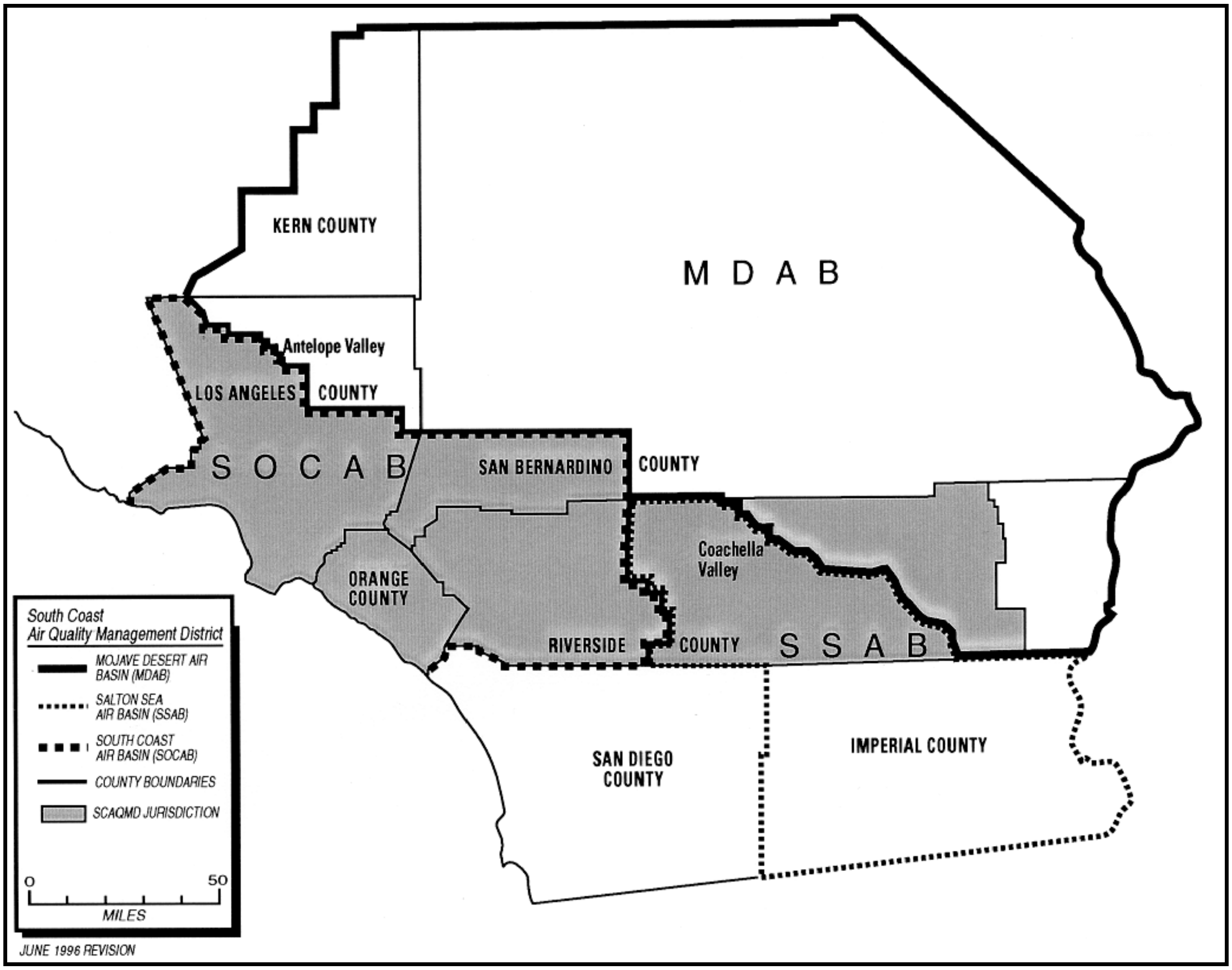
Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations of VOC because of interference with oxygen uptake. In general, ambient VOC concentrations in the atmosphere are suspected to cause coughing, sneezing, headaches, weakness, laryngitis, and bronchitis, even at low concentrations. Some hydrocarbon components classified as VOC emissions are thought or known to be hazardous. Benzene, for example, one hydrocarbon component of VOC emissions, is known to be a human carcinogen.

PROJECT LOCATION

The district has one of the worst air quality problems in the nation. Though there have been significant improvements in air quality in the district over the last decade and a half, some air quality standards are still exceeded frequently and by a wide margin.

The SCAQMD has jurisdiction over an area of approximately 10,743 square miles (referred to hereafter as the district), consisting of the four-county South Coast Air Basin (Basin), the Riverside County portions of the Salton Sea Air Basin (SSAB), and the Mojave Desert Air Basin (MDAB) (both formerly part of the Southeastern Desert Air Basin). The Basin, which is a subarea of the district, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. The Basin includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The Riverside county portion of the SSAB and MDAB are bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley. The federal nonattainment area (known as the Coachella Planning Area) is a subregion of Riverside County and the SSAB that is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east (Figure 1-1).

Figure 1-1
South Coast Air Quality Management District



BACKGROUND

VOC emissions from architectural coating operations are regulated by SCAQMD Rule 1113. Under this Rule, emissions are controlled by limiting the VOC content, measured in grams per liter, of the architectural coatings sold and applied in the district. Architectural coatings are defined by their application and use and include coatings which are applied to stationary structures including residential and commercial buildings; billboards; curbs and roads; and mobile homes. VOCs are emitted to the atmosphere from the evaporation of organic solvents used in industrial maintenance coatings, nonflats, flats, primers/sealers/undercoaters, waterproofing sealers, varnishes, wood preservatives, lacquers, fire retardant coatings, etc. The current Rule and PAR 1113 apply to those persons who supply, sell, apply, solicit the application of, and manufacture such coatings.

Rule 1113 was originally adopted September 2, 1977 to regulate the VOC emissions from the application of architectural coatings, and has been amended several times since the date of adoption, mostly to exempt certain coating categories from the 250 grams per liter (g/l) exterior coating VOC limit and 350 g/l interior coating VOC limit. In contrast to the earlier amendments, the rule was amended on February 2, 1990 to further reduce VOC emissions from certain, previously exempted coating categories. The February 2, 1990 limits were based primarily on the California Air Resources Board (CARB) Suggested Control Measure (SCM) for architectural and industrial maintenance coatings. A consortium of California air pollution control districts, the CARB, U. S. Environmental Protection Agency Region IX, and paint manufacturers developed the provisions in the SCM. Upon adoption of the lower VOC limits, coating manufacturers sued the District, along with other air districts, over issues that they felt were not adequately addressed in the staff report or in the CEQA document. The suit stayed portions of the February 1990 amendments, as specified in the Superior Court judgment. Subsequent rule amendments adopted November 1990, December 1990, and September 1991 were not subject to the court judgment. The most recent amendments to Rule 1113 were adopted on November 8, 1996, and resulted in a net emission reduction of 10.3 tons per day of VOC. Subsequently, industry filed three separate lawsuits, questioning the validity of the proposed future limits for the lacquer and flat coating categories. The District has prevailed in all three cases.

In an effort to better understand the state of coating technology for industrial maintenance coatings, non-flats, and other coatings, the SCAQMD in Spring 1996 contracted with Eastern Michigan University (EMU) to conduct an informational study. The EMU study generally found that high-VOC, low-VOC, and zero-VOC coatings were commercially available for industrial maintenance; non-flats; primers, sealers, and undercoaters; waterproofing sealers; and stains coatings. Unfortunately, the EMU study found that durability information for the low- and zero-VOC coatings in these coating categories was not widely available. This finding was to a certain extent based on the fact that coatings manufacturers did not supply durability information on their low- and zero-VOC coatings. As a result, the EMU study recommended that side-by-side comparisons be made between low- and zero-VOC coatings with high-VOC coatings.

Due to the lack of durability information contained in the EMU study, the District has contracted with National Technical Systems (NTS) to conduct a comparative study that will evaluate the durability and application characteristics of the following coating categories: industrial maintenance; non-flats; primers, sealers, and undercoaters; waterproofing sealers; and stains. The final report will provide side-by-side comparisons for the aforementioned coatings and discuss results pertaining to overall performance. A total of 114 coatings will be included in the study. Preliminary laboratory data is expected by late November 1998.

In addition to the NTS study, CARB is currently in the process of refining their architectural coatings inventory for the state of California. The current inventory is based on 1990 industry sales data. The current inventory update would be based on 1996 industry sales data. CARB has requested not only the 1996 sales information for various coating categories, but also speciation profiles for each coating category. This updated inventory will assist staff in evaluating the current emissions inventory from use of architectural coatings, as well as providing a more accurate estimate of the emission reductions that can be achieved from each of the coating categories affected by the proposed amendments. The CARB 1998 architectural emissions inventory is expected to be completed by late November 1998.

PROJECT DESCRIPTION

The primary objective of PAR 1113 is to readopt portions of the definitions and lower VOC limits that were originally adopted on February 2, 1990, and overturned by the Superior Court on August 21, 1990. Additionally, PAR 1113 seeks to implement, in part, the 1997 AQMP control measure CTS-07, which calls for a 50 percent reduction in VOC emissions from architectural coatings by 2010 and the federally enforceable 1994 AQMP, which calls for a 75 percent reduction. This represents a 30 tons per day VOC reduction by 2010 from this area source category and is one of the largest emission reduction control measures in the 1997 AQMP. The November 1996 amendments to Rule 1113, which lowered the VOC content limits from lacquers, flats (interior and exterior), traffic coatings, and multi-color coatings, are projected to reduce VOC emissions by 10.3 tons per day by 2010. Based on the current inventory, PAR 1113 is projected to reduced VOC emissions by an additional 19.7 tons per day by 2010.

To achieve the additional 19.7 tons per day of VOC emission reductions called for in control measure CTS-07, PAR 1113 would lower the allowable VOC content per liter of coating from industrial maintenance (IM) coatings, non-flats, primers, sealers, and undercoaters, quick-dry enamels, and waterproof sealers. PAR 1113 would also delete the current exemption for quick-dry primers, sealers, and undercoaters. Although not included in the proposed amendments, staff is currently evaluating the feasibility of expanding the existing Rule 1113 averaging provision to include additional coating categories.

Additionally, PAR 1113 will expand the “Averaging Provision” to include the coating categories that will be impacted. However, this proposed change has not yet been included in the proposed rule language because staff would like to discuss if averaging is feasible. For a complete description of PAR 1113, the reader is referred to Appendix A of this Initial Study.

PROJECTED EMISSIONS REDUCTIONS

The implementation of PAR 1113 is currently estimated to result in 19.7 tons per day of VOC emission reductions on an annual average inventory basis and 23.3 tons per day on the summer planning inventory basis by the year 2010. The table below summarizes the current proposed changes in VOC limits and the associated projected emission reductions. However, the results and information provided by the NTS study and the CARB 1998 architectural emissions inventory could change the emission limits and reduction estimates listed in Table 1-1.

Table 1-1
PAR 1113 Proposed Emission Limits and Projected Emission Reductions for Affected Coating Categories

Coating Category	Current Limit[1] (g/l)	Proposed Limit[1] (g/l)	Annual Average Emission Reductions (tons/day)	Summer Planning Emission Reductions (tons/day)
Industrial Maintenance Coatings	420	100 (effective 07/01/2001) 50 (effective 07/01/2005)	5.3	6.3
Non-Flats	250	100 (effective 07/01/2001) 50 (effective 07/01/2005)	8.9	10.5
Quick-Dry Enamel	400	100 (effective 07/01/2001) 50 (effective 07/01/2005)	TBD	TBD
Primers, Sealers, Undercoaters (PSU)	350	100 (effective 07/01/2001) 50 (effective 07/01/2005)	4.0	4.7
Quick-Dry PSU	Exempt[2]	100 (effective 07/01/2001) 50 (effective 07/01/2005)	1.5	1.8
Stains	350	250 (effective 07/01/2001)	TBD[3]	TBD
Water-Proofing Sealers	400	250 (effective 7/1/2001)	TBD	TBD
		Total	**19.7[4]**	**23.3**

[1] Grams of VOC per liter of coating, less water and less exempt compounds
[2] Currently exempt if manufacturers reports sales data
[3] TBD – To be determined upon completion of the NTS study and CARB 1998 architectural emissions inventory survey.

[4] Estimated emission reductions based on 1990 sales info. (1994 CARB Survey).

ALTERNATIVES

The Draft SEA will discuss and compare alternatives to the proposed project pursuant to SCAQMD Rule 110 and CEQA Guidelines §15252, which require discussion of reasonable alternatives to avoid or reduce potentially significant effects and that feasibly attain the basic objectives of the proposed project. The purpose of the discussion of alternatives is to foster informed decision making and public participation. A CEQA document need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.

Some alternatives that are currently under consideration for inclusion in the Draft SEA are summarized below.

- Low Vapor Pressure Exemption - VOC emission limits would be based on the volatility of affected coatings' VOC compounds rather than the VOC content of the coating. Thus, under this alternative, VOC compounds with low vapor pressures may be exempted as a VOC from the overall VOC content of the coating.

- Performance-based standards – Emission standards would be based on VOC emissions per area covered per year rather than VOC content of the coatings.

- Reactivity – VOC emission limits would be based on the ozone reactivity of affected coatings' VOC compounds rather than the VOC content of the coating.

- Product Line Averaging – Rather than a coating manufacturer having to meet a specific VOC content limit for each specific product line, this alternative would allow averaging for all product lines.

- Regional Deregulation – Areas in the district that do not have an ozone problem or contribute to the SCAQMD's ozone problem would be exempted from the VOC content requirements of the proposed amendments. Since the district has high NOx levels that contribute to the district's ozone problems, this alternative is not currently applicable. However, as NOx levels decrease in the future and the district reaches attainment for ozone, this alternative may be feasible. Thus, this alternative will be analyzed for its future applicability.

- Seasonal Approach – Low-VOC content limits for various coatings would only be in effect during the "high ozone season" (i.e., typically the summer months). During the "low ozone season" (i.e., typically the winter months), affected coatings with higher VOC content limits could be used.

- VOC Content Limits / Final Compliance Deadlines – As a result of information obtained from industry or through various studies and surveys, the proposed VOC content limits and/or final compliance deadlines as shown above in Table 1-1 may be modified.

SCAQMD Rule 110 (the rule that implements the SCAQMD's certified regulatory program) does not impose any greater requirements for a discussion of project alternatives in an environmental assessment than is required for an EIR under CEQA.

Written suggestions on project alternatives received during the comment period for the NOP will be considered when preparing the Draft SEA.

INITIAL ENVIRONMENTAL EVALUATION

Chapter 2 of this Initial Study contains an environmental checklist that was prepared to identify potentially significant adverse environmental impacts, and will determine the scope of the analysis in the Draft EA. Items checked as having a "Potentially Significant Impact" will be analyzed further in the Draft EA.

CHAPTER 2

ENVIRONMENTAL CHECKLIST

INTRODUCTION

The environmental checklist provides a standard evaluation tool to identify a project's adverse environmental impacts. A sample checklist form is provided in the State CEQA Guidelines, Appendix I. The SCAQMD has slightly modified the Appendix I checklist, but it still addresses all areas identified in the Appendix I checklist. This checklist identifies and evaluates potential adverse environmental impacts that may be created by the proposed project.

GENERAL INFORMATION

Name of Project Proponent:	South Coast Air Quality Management District
Address of Proponent:	21865 E. Copley Drive Diamond Bar, CA 91765
Lead Agency:	South Coast Air Quality Management District
Name of Project:	Proposed Amended Rule 1113

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental areas marked with an " " (checkmark) have the potential to be adversely affected by the proposed project. A checkmark of potentially significant impact does not mean the proposed project will have a significant impact but requires further evaluation, which may lead to an ultimate determination of no significant impact. An explanation relative to the determination of each of the areas can be found in the expanded checklist that follows.

¤	Land Use and Planning	¤	Population and Housing	¤	Geophysical
	Water		Air Quality	¤	Transportation/ Circulation
¤	Biological Resources	¤	Energy and Mineral Resources	¤	Hazards
¤	Noise		Public Services	¤	Solid/Hazardous Waste
¤	Aesthetics	¤	Cultural Resources	¤	Recreation
	Mandatory Findings of Significance				

DETERMINATION

On the basis of this initial evaluation:

¤ I find the proposed project, in accordance with those findings made pursuant to CEQA Guideline § 15252, could NOT have a significant effect on the environment, and that an ENVIRONMENTAL ASSESSMENT with no significant impacts will be prepared.

¤ I find that although the proposed project could have a significant effect on the environment, there will NOT be significant effects in this case because the mitigation measures described on an attached sheet have been added to the project. A MITIGATED ENVIRONMENTAL ASSESSMENT with no significant impacts will be prepared.

I find that the project MAY have a significant effect(s) on the environment, and an ENVIRONMENTAL ASSESSMENT will be prepared.

Date: August 21, 1998 Signature: Steve Smith

Steve Smith, Ph.D.
Program Supervisor

EVALUATION OF ENVIRONMENTAL IMPACTS

	Potentially Significant Impact	No Impact
I. LAND USE AND PLANNING. *Would the proposal:*		
a) Conflict with general plan designation or zoning?	¤	
b) Conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project?	¤	
c) Affect agricultural resources or operations (e.g. impacts to soils or farmlands, or impacts from incompatible land uses)?	¤	
d) Disrupt or divide the physical arrangements of an established community (including a low-income or minority community)?	¤	

Discussion:

Implementation of the proposed amendments to Rule 1113 will not cause significant adverse impacts to land uses or land use planning in the district. It is anticipated that any increased activities will occur at existing facilities or sites. Thus, no new resources or facilities are expected to be constructed which would result in any land use impacts.

No new development or alterations to existing land use designations will occur as a result of the implementation of the proposed amended Rule (PAR) 1113. It is not anticipated that the use of compliant Rule 1113 coatings in the district would require additional land to continue current operations or require rezoning. Therefore, no significant adverse impacts affecting existing or future land uses are expected.

	Potentially Significant Impact	No Impact
II. POPULATION AND HOUSING. *Would the proposal:*		
a) Cumulatively exceed official regional or local population projections?	¤	
b) Induce substantial growth in an area either directly or indirectly (e.g. through projects in an undeveloped area or extension of major infrastructure)?	¤	
c) Displace existing housing, especially affordable housing?	¤	

Discussion:

Human population in the district is anticipated to grow regardless of implementing PAR 1113. The proposed amendments will primarily affect the formulation of architectural coatings and are not anticipated to generate any significant effects, either direct or indirect on the district's population as no additional workers are anticipated to be required to comply with the proposed amendments. Further, PAR 1113 is not expected to cause a relocation of population within the district. As a result, housing in the district is expected to be unaffected by the proposed amendments. New housing construction is not expected to be affected by the use of lower-VOC coatings.

Additionally, adoption of PAR 1113 is not expected to contribute to any significant housing cost increases because reformulated coatings are currently being sold at comparable prices as "traditional" higher-VOC coatings. Direct economic impacts are not required to be analyzed pursuant to CEQA unless they also have a significant, direct effect on physical environmental parameters. Cost impacts associated with implementation of PAR 1113 will be discussed in the District's Socioeconomic Impact Assessment (under separate cover).

	Potentially Significant Impact	No Impact
III. GEOPHYSICAL. *Would the proposal result in or expose people to potential impacts involving:*		
a) Seismicity: fault rupture, ground shaking, seiche or tsunami?	¤	
b) Landslides or mudslides?	¤	
c) Erosion, changes in topography or unstable soil conditions from excavation, grading or fill?	¤	
d) Subsidence of land?	¤	

Discussion:

Architectural coatings are applied to buildings, stationary structures, roads, etc. The proposed amendments affect coating formulators and have no effects on geophysical formations in the district. Additionally, since add-on control equipment will not be used to reduce VOC emissions from architectural coatings, PAR 1113 is not expected to result in additional exposure of people to potential impacts involving seismicity, landslides, mudslides or erosion as no new development is anticipated.

	Potentially Significant Impact	No Impact
IV. WATER. *Would the proposal result in:*		
a) Changes in adsorption rates, drainage patterns, or the rate and amount of surface runoff?	¤	
b) Exposure of people or property to water related hazards such as flooding?	¤	
c) Discharge into surface waters or other alteration of surface water quality (e.g. temperature, dissolved oxygen or turbidity)?		¤

d) Changes in the amount of surface water in any water body?	¤	
e) Changes in currents, or the course or direction of water movements?	¤	
f) Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?	¤	¤
g) Altered direction or rate of flow of groundwater	¤	¤
h) Impacts to groundwater quality?		¤
i) A need for new water treatment, distribution, sewer or storm water drainage systems?		¤

Discussion:

Many architectural coatings manufacturers are expected to meet the lower VOC limits in PAR 1113 by reformulating or substituting VOC-containing materials with other substances (e.g., water-based, non-toxic, and/or VOC-free materials). The expanded use of reformulated materials to replace VOC-containing materials has the potential to adversely affect both water demand and water quality (e.g., surface water and groundwater). As the production of water-based materials increases, for example, there could be a greater demand for water from those industries that manufacture the water-based materials. In addition, use of water based coatings may generate increased amounts of wastewater from coating applications. Water used for equipment cleanup and unused product may contain hazardous materials in excess of levels permitted in wastewater discharges. This wastewater may be discharged into storm drains and sanitary sewers and may, therefore, alter surface water quality. Additionally, wastewater from clean-up activities could be dumped on the ground, which may infiltrate into the water table, thus, affecting groundwater quality. These water impacts will be evaluated in more detail in the Draft SEA.

V. **AIR QUALITY.** *Would the proposal:*	**Potentially Significant Impact**	**No Impact**
a) Violate any air quality standard or contribute to an existing or projected air quality violation?		¤
b) Expose sensitive receptors to pollutants?	¤	
c) Alter air movement, moisture, or temperature, or cause any change in climate?	¤	
d) Create Objectionable odors?		¤
e) Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s).		¤

Discussion:

During promulgation of past amendments to Rule 1113 in which the VOC content limits of various coating categories were lowered, the SCAQMD received comments that estimated emission reductions would not be as great as originally anticipated for eight reasons, which are summarized.

More Thickness

Coating manufacturers and coating contractors assert that reformulated compliant water- and solvent-based coatings are very viscous (e.g., high-solids content) and difficult to handle during application, tending to produce a thick film when applied directly from the can. A thicker film indicates that a smaller surface area is covered with a given amount of material, thereby increasing VOC emissions per unit of area covered.

More Thinning

Because reformulated compliant water- and solvent-based coatings are more viscous (e.g., high-solids content), coating manufacturers and coating contractors assert that painters have to adjust the properties of the coatings to make them easier to handle and spread. Especially, for solvent-based coatings this adjustment consists of thinning the coating as supplied by the manufacturer by adding solvent to change the viscosity of the coating. The added solvent increases VOC emissions back to or sometimes above the level of older formulations. With water-based coatings, thinning is not an issue because water is the solvent used to thin these coatings.

More Priming

Coating manufacturers and coating contractors assert that reformulated compliant water- and low-VOC solvent-based topcoats do not adhere as well as higher-VOC solvent-based topcoats to unprimed substrates. Therefore, the substrates must be primed with typical solvent-based primers to enhance the adherence quality. Additionally, water-based sealers do not penetrate and seal porous substrates like wood, as well as traditional solvent-based sealers. This results in three or four coats of the sealer per application compared to one coat for a high-quality solvent-based sealer.

More Topcoats

Coating manufacturers and coating contractors assert that reformulated compliant water- and low-VOC solvent-based topcoats may not cover, build, or flow-and-level as well as the solvent-based formulations. Therefore, more coats are necessary to achieve equivalent cover and coating build-up.

More Touch-Ups and Repair Work

Coating manufacturers and coating contractors assert that reformulated compliant water- and low-VOC solvent-based formulations dry slowly, and are susceptible to damage such as sagging, wrinkling, alligatoring, or becoming scraped and scratched. The high-solids solvent-based enamels tend to yellow in dark areas. Water-based coatings tend to blister or peel, and also result in severe blocking problems. All of these problems require additional coatings for repair and touch-up.

More Frequent Recoating

Coating manufacturers and coating contractors assert that the durability of the reformulated compliant water- and low-VOC solvent-based coatings is inferior to the durability of the traditional solvent-based coatings. Durability problems include cracking, peeling, excessive chalking, and color fading, which all typically result in more frequent recoating.

More Reactivity

Different types of solvents have different degrees of "reactivity", which is the ability to accelerate the formation of ground-level ozone. Coating manufacturers and coating contractors assert that the reformulated compliant water- and low-VOC solvent-based coatings contain solvents that are more reactive than the solvents used in higher-VOC solvent-based formulations. Furthermore, water-based coatings perform best under warm, dry weather conditions, and are typically recommended for use between May and October. Since ozone formation is also dependent on the meteorological conditions, use of waterborne coatings during this period increases the formation of ozone.

Substitution

Coating manufacturers and coating contractors assert that since reformulated compliant water- and low-VOC solvent-based coatings are inferior in durability and are more difficult to apply, consumers and contractors will substitute better performing coatings in other categories for use in categories with low compliance limits. An example of this substitution could be the use of a non-flat coating (currently with a higher compliance limit) in place of a low-VOC, flat coating on interior drywall.

All of these issues will be analyzed in more detail in the Draft SEA.

Regarding secondary emissions from power plants providing power to special spray equipment used to apply reformulated coatings, it is expected that current district baseline emissions will not increase. Currently, almost 75 percent of the electricity used in the district is imported from out-of-state power plants. Any additional electricity needed to power special spray equipment would most likely be provided by out-of-state power plants. Furthermore, any in-district power generation would be provided by facilities subject to the requirements of SCAQMD Regulation XX - Regional Clean Air Markets (RECLAIM) or Rule 1135 - Emission of Oxides of Nitrogen From Electric Power Generating Systems. These rules cap emissions from power generating facilities and require the emissions to be reduced over time. Therefore, secondary emissions from power plants are not expected to be significant and will not be evaluated further.

Toxics

The SCAQMD has also received comments in the past that compliant low-VOC coatings are often formulated with toxic compounds. As a result, material replacement or reformulation to reduce the use of high-VOC solvent-based coatings has the potential to result in health risks associated with exposure to both carcinogenic and noncarcinogenic toxic air contaminants. Material reformulation or substitution may result in increased use of acetone, a compound that has been delisted as a VOC by EPA, and will not be regulated by the AQMD. Increased application of acetone-based coatings has the potential to increase objectionable odors. The toxic air impacts and potential odor impacts will be evaluated in more detail in the Draft SEA.

VI. **TRANSPORTATION/CIRCULATION.** *Would the proposal result in:*	**Potentially Significant Impact**	**No Impact**
a) Increased vehicle trips or traffic congestion?	¤	
b) Hazards to safety from design features (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	¤	
c) Inadequate emergency access or access to nearby uses?	¤	
d) Insufficient parking capacity on-site or off-site?	¤	
e) Hazards or barriers for pedestrians or bicyclists?	¤	
f) Conflicts with adopted policies supporting alternative transportation (e.g. bus turnouts, bicycle racks)?	¤	
g) Rail, waterborne or air traffic impacts?	¤	

Discussion:

The proposed amendments will not substantially increase the amount of businesses or equipment in the district. The main effect of the proposed amendments will be to alter the way certain architectural coatings are manufactured. PAR 1113 will not result in a substantial increase in vehicle trips throughout the entire district from the transportation of compliant water-based or low-VOC solvent-based coatings. Even if more frequent application of complaint coatings may occur as a result of the implementation of PAR 1113, the frequency and concentration of daily trips to and from any one location in the district (e.g., manufacturer to distribution center, manufacturer to retail painting store, contractor to retail painting store, or do-it-yourselfer to retail painting store) is not expected to cause significant traffic impacts. Therefore, potential increases in traffic or alterations of traffic patterns are not anticipated from the manufacture, delivery, and use of compliant PAR 1113 coatings.

Coating performance and durability issues will be discussed relative to potential indirect air quality impacts in the Air Quality Impacts section of the Draft SEA.

	Potentially Significant Impact	No Impact
VII. BIOLOGICAL RESOURCES. *Would the proposal result in impacts to:*		
a) Locally designated natural communities (e.g. oak forest, coastal habitat, etc.)?	¤	
b) Wildlife dispersal or migration corridors?	¤	

Discussion:

PAR 1113 is not expected to adversely affect existing plant or animal species or communities, unique or endangered plant or animal species, or agricultural crops. Improvements in air quality from PAR 1113 are expected to provide health benefits to plant, animal species as well as the human residents in the district. No significant adverse impacts to biological resources are expected to result from the proposed rule amendments because PAR 1113 is expected to affect facilities in residential, industrial or commercial areas where biological resources are already severely disturbed.

	Potentially Significant Impact	No Impact
VIII. ENERGY AND MINERAL RESOURCES. *Would the proposal:*		
a) Conflict with adopted energy conservation plans?	¤	
b) Use non-renewable resources in a wasteful and inefficient manner?	¤	

Discussion:

Electricity

Because add-on control equipment is not expected to be used to comply with the provisions of PAR 1113, no additional energy use is expected to be required. Additionally, PAR 1113 will not substantially increase the number of businesses or amount of equipment in the district. Furthermore, energy usage associated with providing power for special spray equipment used to apply reformulated coatings, is expected to be negligible. Currently, almost 75 percent of the electricity used in the district is imported from out-of-state power plants. Thus, there is a substantial amount of unused generating capacity in the basin. Any additional electricity needed to power special spray equipment would most likely be provided by out-of-state power plants. Any incremental power generation necessary to power special spray-equipment operation would be negligible compared to overall in-district generation and could be easily met by existing in-district capacity. Therefore, no increases in energy consumption or mineral resources are expected from the implementation of PAR 1113. Consequently, energy impacts are not considered to be significant.

Natural Gas

The consumption of natural gas in the district is not expected to increase as a result of the implementation of PAR 1113. Electricity will be the primary source of energy used to power the spraying equipment operated at various sites. Consequently, natural gas energy impacts from implementing PAR 1113 are not considered to be significant.

Fossil Fuels

PAR 1113 is also expected not to substantial increase energy consumption from non-renewable resources (e.g., diesel and gasoline) above current district usage levels. Any incremental fuel usage from trips associated with more frequent application of complaint coatings are expected to be negligible. There are sufficient supplies of gasoline and diesel to meet the small fuel demands from transport trips associated with more frequent application of complaint coatings. Therefore, fossil fuel energy impacts from implementing PAR 1113 are not considered to be significant.

	Potentially Significant Impact	No Impact
IX. HAZARDS. *Would the proposal involve:*		
a) A risk of accidental explosion or release of hazardous substances (including, but not limited to: oil, pesticides, chemicals or radiation)?	¤	
b) Possible interference with an emergency response plan or emergency evacuation plan	¤	
c) The creation of any health hazards or potential health hazard?	¤	
d) Exposure of people to existing sources of potential health hazards?	¤	
e) Increased fire hazard in areas with flammable brush, grass, or trees?	¤	

Discussion:

Risk of Upsets

Some coating manufacturers may elect to comply with the VOC content limits of PAR 1113 by reformulating their coatings with the acetone (exempt solvent). During past promulgation of amendments to various SCAQMD coating and solvent rules (e.g., 102, 1107, 1113, 1136, etc.) the SCAQMD received comments that acetone could result in hazards impacts (e.g., risk of fire or explosion) because of its flammability. The SCAQMD has extensively analyzed the alleged hazards impacts associated with the reformulation of coatings with acetone in EAs for 102, 1107, 1113, and 1136 as well as the 1997 AQMP and has concluded that the reformulation of acetone will not create significant hazards impacts on a project-specific basis. Thus, the project-specific hazards impacts associated with the implementation of PAR 1113 are also considered insignificant. Furthermore, any increase in accidental releases of compliant acetone-based coatings would be expected to result in a concurrent reduction in the number of accidental releases of existing coating materials. In addition, cumulative hazards impacts associated with the reformulation of acetone are not considered significant because in the incremental increase from the reformulation of acetone associated with the implementation of PAR 1113 are negligible.

Human Health

The SCAQMD has also received comments in the past that to meet some proposed VOC content limits, manufacturers would have to use hazardous coalescing solvents (i.e., glycol ethers -EGBE) in their water-based reformulations. This, as the argument goes, would lead to human health impacts to workers and the public from their exposure to these compounds. However, various articles and studies, indicate that this is not the case and that solvents such as ethylene glycol ethers or ethylene glycol ether acetates will be replaced with non-hazardous solvents such as propylene glycol ethers or propylene glycol ether acetates in order to comply with the 1990 CAAA. Other reports suggest that non-hazardous solvents such as texanol and propylene glycol are prevalent today in water-based reformulations and should continue to be used in the future. Furthermore, the reformulation of coatings with hazards solvents such as propylene glycol ethers or propylene glycol ether acetates will result in a concurrent reduction in use of coatings containing hazardous solvents such as benzene, toluene, xylene, etc. Thus, the project-specific human health impacts associated with the implementation of PAR 1113 are considered insignificant. In addition, cumulative hazards impacts associated with the reformulation of hazardous solvents are not considered significant because the incremental increase from the reformulation of hazardous solvents associated with the implementation of PAR 1113 are negligible.

	Potentially Significant Impact	No Impact
X. NOISE. *Would the proposal result in:*		
a) Increases in existing noise levels?	¤	
b) Exposure of people to severe noise levels?	¤	

Discussion:

No significant noise impacts are anticipated by the implementation of PAR 1113. Coating manufacturers within the district potentially affected by the proposed amendments are located in existing industrial or commercial areas. It is assumed that operations in these areas are subject to and in compliance with existing community noise standards. In addition to noise generated by current operations, noise sources in each area may include nearby freeways, truck traffic to adjacent businesses, and operational noise from adjacent businesses.

In general, the primary noise source at existing facilities is generated by vehicular traffic, such as trucks transporting raw materials to the facility, trucks hauling wastes away from the facility, trucks to recycle waste or other materials, and miscellaneous noise such as spray equipment (i.e. compressors, spray nozzles) and heavy equipment use (forklifts, trucks, etc.). Noise is generated during operating hours, which generally range from 6 a.m. to 5 p.m., Monday through Friday. PAR 1113 is not expected to alter noise from existing noise generating sources.

Additionally, the implementation of PAR 1113 is not expected to result in significant noise impacts in residential areas. As with industrial or commercial areas, it is assumed that these areas are subject to local community noise standards. Contractors or do-it-yourselfers applying compliant PAR 1113 coatings in residential areas are expected to comply with local community noise standards.

	Potentially Significant Impact	No Impact
XI. PUBLIC SERVICES. *Would the proposal have an effect upon, or result in a need for new or altered government services in any of the following areas?*		
a) Fire protection?	¤	
b) Police protection?	¤	
c) Schools?	¤	
d) Maintenance of public facilities, including roads?		¤
e) Other governmental service?	¤	

Discussion:

PAR 1113 may result in the use of acetone to reformulate lower-VOC coatings. Acetone is a volatile, flammable liquid at room temperature. Feedback received from these authorities indicates that, based upon their extensive professional experience as a result of years of regulating the use and storage of flammable materials, the use of acetone will pose no greater risks than the use of existing solvents such as MEK, toluene, butyl acetate, etc., even though acetone is slightly more flammable. Furthermore, the handling characteristics for acetone is identical to traditional solvents found existing coatings, relative to fire department procedures. Therefore, no significant public services impacts are expected as a result of reformulating current solvent-based coatings with acetone.

However, the Draft SEA will analyze whether reformulated compliant coatings could lead to more demand for maintenance at public facilities because these coatings do not perform or hold-up as well as traditional solvent-based coatings.

	Potentially Significant Impact	No Impact
XII. UTILITIES AND SERVICE SYSTEMS. *Would the proposal result in a need for new systems, or substantial alterations to the following utilities:*		
a) Power or natural gas?	¤	
b) Communications systems?	¤	
c) Landfills?	¤	

Discussion:

PAR 1113 will not substantially increase the amount of businesses or equipment in the District. Since add-on control equipment is not expected to be used to comply with the provisions of PAR 1113, no additional increase on the demand for utilities (e.g., electrical, gas, and communication systems) is expected. Also, with the use of water-based coatings to comply with the proposed lower-VOC content limits, it is expected that less solid waste will be deposited into landfills because some of the excess water-based material can be recycled and reused. Impacts to utilities or service systems are, therefore, not considered to be significant.

XIII. AESTHETICS. *Would the proposal:*	**Potentially Significant Impact**	**No Impact**
a) Affect a scenic vista or scenic highway?	¤	
b) Have a demonstrable negative aesthetic effect?	¤	
c) Create light or glare?	¤	

Discussion:

The proposed amendments do not require any changes in the physical environment that would obstruct any scenic vistas or views of interest to the public. In addition, no major changes to existing facilities or stockpiling of additional materials or products outside of existing facilities are expected to result. The reason for this determination is that any physical changes would occur at existing industrial or commercial sites. Therefore, no significant impacts adversely affecting existing visual resources such as scenic views or vistas, etc. are anticipated to occur.

Coating performance and durability issues will be discussed relative to potential indirect air quality impacts in the Air Quality Impacts section of the Draft SEA.

XIV. CULTURAL RESOURCES. *Would the proposal:*	**Potentially Significant Impact**	**No Impact**
a) Disturb paleontological resources?	¤	
b) Disturb archaeological resources?	¤	
c) Have the potential to cause a physical change that would affect unique ethnic cultural values?	¤	

Discussion:

There are existing laws in place that are designed to protect and mitigate potential impacts to cultural resources. Should archaeological resources be found during the application of Rule 1113 coatings to newly constructed structures or existing structures, the application of such coating would cease until a thorough archaeological assessment is conducted. Furthermore, the application of architectural coatings, in the vast majority of situations, would occur after construction where archaeological resources would have already been disturbed. The proposed revisions to Rule 1113 are, therefore, not anticipated to result in any activities or promote any programs that could have a significant adverse impact on cultural resources in the District.

XV. **RECREATION.** *Would the proposal:*	**Potentially Significant Impact**	**No Impact**
a) Increase the demand for neighborhood or regional parks or other recreational facilities?	¤	
b) Affect existing recreational opportunities?	¤	

Discussion:

No recreational resources in the district are expected to be adversely affected by the implementation of PAR 1113. The proposed amendments will not generate additional demand for, or otherwise affect land used for recreational purposes. Further, as already discussed in the Land Use section above, the proposed amendments are not expected to have adverse affects on land uses in general. Therefore, no significant adverse effects on recreational facilities are expected from the implementation of PAR 1113.

XVI. **MANDATORY FINDINGS OF SIGNIFICANCE.**	**Potentially Significant Impact**	**No Impact**
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	¤	
b) Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	¤	
c) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)		¤
d) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?		¤

Discussion:

As a result of the possible adverse effects on air quality, water demand, water quality and public services, the proposed project has the potential to degrade the quality of the environment. Many of the impacts are individually limited, but could be cumulatively significant. There may be adverse human health impacts associated with exposure to both carcinogenic and noncarcinogenic toxic air contaminants. These potential human health impacts may occur individually, such as elevated exposure to toxic air contaminants, or cumulatively, if different environmental impacts reinforce each other. These impacts will be evaluated in detail in the Draft SEA.

A P P E N D I X C

R E S P O N S E S T O C O M M E N T S O N T H E N O P / I S

Comment Letter #1:	**ELRAP**
Comment Letter #2:	**Law Offices of Smiland & Khachigian**
Comment Letter #3:	**Sherwin Williams**
Comment Letter #4:	**National Paint & Coatings Association**
Comment Letter #5:	**PPG Industries, Inc.**
Comment Letter #6:	**Benjamin Moore & Co.**
Comment Letter #7:	**Bona**
Comment Letter #8:	**Du Pont**
Comment Letter #9:	**Carboline Company**
Comment Letter #10:	**Southern California Association of Governments**

COMMENT LETTER #1

ELRAP

COMMENT LETTER #1
ELRAP
December 1, 1998

1-1 Comment letter #1 consists of a series of letters and reference materials. To distinguish between different documents in this comment letter, the following protocol will be followed: the first document following the initial comment letter will be comment letter #1a, the second document following the initial comment letter will be comment letter #1b, etc.

Since release of the Notice of Preparation/Initial Study (NOP/IS), proposed amended Rule (PAR) 1113 has been modified. Responses to comments received on the NOP/IS and the project description in Draft Subsequent Environmental Assessment (SEA) for PAR 1113 reflect the most current version of PAR 1113.

1-2 The statement identified by the commentator does not pre-judge the conclusions of the analysis of potential environmental impacts from PAR 1113. It is a statement of the goals of the project. This is consistent with CEQA Guidelines §15124(b) which states that the project description should include, " A statement of the Objectives sought by the proposed project. Although CEQA Guidelines §15124(b) refers specifically to the project description in an environmental impact report (EIR), this does not preclude stating the project objectives in other types of CEQA documents.

1-3 The commentator's assertion that the passage cited from the NOP/IS is speculation that is "… grossly over-simplified, inaccurate, and misleading," demonstrates a fundamental misunderstanding. Air quality modeling performed for the 1997 AQMP demonstrates not only the contribution VOC emissions make toward ambient ozone concentrations but also the need for further reducing VOC emissions to comply with the national and California ambient air quality standards. Further, ground level ozone formation is a result of complex chemical reactions involving both VOCs and NOx. VOCs react with hydroxyl radicals to form organic peroxyl radicals which subsequently react with nitric oxide (NO) to form nitrogen dioxide (NO_2). Nitrogen dioxide photo-disassociates to form NO and oxygen atoms. The oxygen atoms rapidly associate with molecular oxygen to form ozone. The amount of ozone formed is a function of the number of conversions of NO to NO_2 due to the organic "chain reactions." When VOC emissions are lowered, the number of NO-to-NO_2 conversions decrease. Discussions on the atmospheric chemistry of ozone formation can be found in the 1991 National Research Council report, "Rethinking the Ozone Problem in Urban and Regional Air Pollution." Specifically, page 116 states… "the presence of VOCs causes enhanced NO-to-NO_2 conversion and hence the production of concentrations of ozone that exceed those encountered in the clean background troposphere." Additionally, the SCAQMD's preliminary analysis indicates that additional reductions of VOC and NOx emissions beyond those included in the AQMP will likely be necessary to meet the recently promulgated National Ambient Air Quality Standards for ozone and PM2.5.

Because of the extreme ozone nonattainment status of the South Coast Air Basin, the SCAQMD must control both NOx and VOC emissions if the area is to achieve ambient air quality standards. The AQMP for this district targets all feasible, cost-effective VOC emission reduction strategies from sources under its jurisdiction.

1-4 The Commentator is referred to response to comment #1-1.

1-5 The emission reduction estimates contained in the NOP/IS were preliminary estimates of potential emission reductions from reducing the VOC content of the specified architectural coating categories. The SCAQMD has acknowledged the eight issues cited by the commentator and included them in the NOP/IS indicating that each issue will be further addressed in the Draft SEA. For a complete discussion of the eight issues and their effects on potential VOC emissions reductions, the commentator is referred to Chapter 4.

1-6 The project alternatives concepts included in the NOP/IS have been further discussed during Industry Working Group meetings and evaluated by staff. Some of these alternatives have been determined to be infeasible, some have been incorporated into PAR 1113 and some form the basis of one or more project alternatives. The commentator is referred to Chapter 5 for a discussion of project alternatives considered and rejected as infeasible or evaluated and compared to PAR 1113.

1-7 Adoption of PAR 1113 is not expected to contribute to any significant housing cost increases because reformulated coatings are currently being sold at comparable prices as "traditional" higher-VOC coatings. Direct economic impacts are not required to be analyzed pursuant to CEQA unless they also have a significant, direct effect on physical environmental parameters. Cost impacts associated with implementation of PAR 1113 are discussed in the District's Socioeconomic Impact Assessment (under separate cover).

1-8 The issues referred to by the commentator from the NOP/IS have been evaluated in Chapter 4 of the Draft SEA. The commentator, therefore, is referred to Chapter 4. With regard to the July 26 ELRAP document mentioned by the commentator, this document and specific responses to this document can be found in the Final SEA for PAR 1113 (AQMD No. 960626DWS).

1-9 In this comment the commentator asserts that transportation/circulation impacts will occur as a result of implementing PAR 1113 in part because the drying times of low VOC coatings are longer than the drying times for conventional coatings. As a result, jobs will take more than one day to complete. It is assumed here that the biggest concern regarding drying time would be for primers, sealers, and undercoaters since, by definition, these require additional topcoats. As part of the analysis of PAR 1113, staff evaluated coating product data sheets (which typically include drying times) for a large number of conventional and low VOC coatings (see the tables in Appendix D and the related summary tables in Chapter 4). The available information from product data sheets indicates that low VOC primers, sealers, and undercoaters have a slightly shorter drying time, on average, than conventional coatings. On average, the drying time for low VOC quick-dry primers, sealers, and undercoaters is comparable to the drying time for the same categories of conventional coatings. Finally, the drying time for low VOC stains is substantially shorter than the drying time for conventional stains. Consequently, the assertion that low VOC coatings have longer drying times that will require more trips over more days is not supported by coating product information sheets.

Regarding surface preparation, staff evaluated this characteristic as part of the evaluation of coating product data sheets mentioned above (see the tables in Appendix D and the summary tables in Chapter 4 of the Draft SEA). Where information or data are provided, the information indicated that low VOC coatings do not require substantially different surface preparation than conventional coatings. As a result, the time necessary to prepare a surface for coating is approximately equivalent for conventional and low VOC coatings.

The issue of topcoats is related to solids content and the amount of area a coating will cover. The review of coating product data sheets indicated that for industrial maintenance floor coatings, low VOC coatings tended to have a higher solids content, with a slightly, but not substantially lower average coverage area than conventional coatings. For most other coating categories affected by PAR 1113, the solids content and area of coverage for low

VOC coatings was, on average, comparable to conventional coatings although some categories, e.g., quick-dry primers, sealers, and undercoaters and stains, had slightly less coverage than conventional coatings in these categories. As a result, since solids content and coverage area for low VOC coatings are comparable to conventional coatings, some additional trips may occur district-wide, but not enough to create significant adverse transportation impacts.

Extra touch-up and repair and more frequent coating applications are related to durability qualities of coatings. Staff reviewed coating product data sheets (see the tables in Appendix D and the relevant summary tables in Chapter 4) to obtain durability information for low VOC coatings and conventional coatings. Based upon the a comparison of the coating product information sheets, staff concluded that low VOC coatings have durability characteristics comparable to conventional coatings. Based upon staff research of coating product information sheets, no significant adverse transportation impacts are anticipated from implementing PAR 1113.

The commentator also asserts that the proposed amendments will result in increased shipping of coatings formulated with acetone. First, many coatings are already formulated with acetone and, therefore, are already being transported in the district. Second, many conventional coatings are formulated with other solvents that are considered as flammable as acetone, e.g., t-butyl acetate, toluene, xylene, MEK, isopropanol, butyl acetate, and isobutyl alcohol. Based upon staff review of coating product information sheets, future compliant low VOC coatings are expected to be formulated with less or non-flammable materials such as texanol, propylene glycol, etc. Consequently, it is anticipated that future compliant coatings will follow the existing trend of moving away from hazardous coating formulations to less or non-hazardous formulations. For a more complete analysis of this issue, the commentator is referred to the "Hazard Impacts" section of Chapter 4.

1-10 It should be noted that the 1992 article cited by the commentator refers to past and possibly current problems concerning homeowners who illegally dispose of currently available coatings into storm drains. The issues raised in this comment relate to potential water quality impacts resulting from the illegal dumping of wastewater with paint residue into storm drains. Although this impact appears to be an existing problem, it has been addressed in the "Water Impacts" section of Chapter 4 in the Draft SEA

1-11 The SCAQMD disagrees with the commentator's assertion that significantly greater quantities of future compliant coatings would need to be used compared to existing coatings. Future compliant coatings are not expected to be used in greater quantities than currently available coatings and, even it this were the case, use of materials in future compliant coatings would not constitute wasteful or inefficient use. Therefore, no significant adverse impacts to nonrenewable resources are anticipated

1-12 As a result of comments received on the Draft SEA for PAR 1113, Chapter 4 includes an analysis of hazards associated with increased usage of future compliant coatings formulated with acetone. The analysis looked at two factors: (1) the probability of increased incidents as a result of the increased usage of acetone-based coatings; and (2) the consequences associated with the incidents. With regard to the probability of more incidents as a result of PAR 1113, it is expected that this will not occur because the number of shipments of architectural coatings will not increase as a result of implementing PAR 1113. While the total amount of acetone shipped may increase, the statistical probability of a truck accident from transporting AIM coatings remains unchanged. In other words, the number of vehicle trips associated with the transporting of AIM coatings to and from various manufacturers, distributors, stores, contractors, and do-it-yourselfers is expected to remain constant after implementing PAR 1113. Based upon the preceding information, hazard impacts are not expected to change appreciably as a result of adopting PAR 1113.

In the context of the consequences associated with incidents, this was analyzed from two perspectives: (1) toxicity of release; and (2) flammability. It is expected that an incident (i.e., spill or explosion), involving the transporting of acetone-based coatings will produce less toxic impacts than other conventional coatings containing solvents such as toluene, xylene, MEK, etc. Acetone has a higher TLV (750 ppm), PEL (750 ppm) and IDLH (20,000 ppm) compared to other conventional solvents. These high exposure limits coupled with acetone's higher vapor pressure indicate that acetone would evaporate quickly in a spill such that extended human exposure to significant levels that could cause harm are unlikely. Further, acetone is also considered to have the same or less toxic effects as other conventional solvents. As a result, even if exposure were to occur, which is highly unlikely, the human health effects would be the same or less compared with existing architectural coatings.

Information received from various fire authorities indicates that even though acetone is slightly more flammable than other conventional solvents it would be treated the same in the event of a fire or explosion because conventional solvents are also flammable. Since PAR 1113 does not increase the probability that a transport accident will occur and the fire authorities would handle this type of incident the same compared with coatings formulated with conventional solvents as with acetone-based coatings, the hazard impacts are not considered to be significant.

1-13 The SCAQMD disagrees with the commentator's assertion that noise impacts will increase with the use of future compliant low VOC coatings, especially those applications were coatings are applied by brush or roller. Coating application systems that rely on pressure and a power source are available that have very low noise levels associated with them. In any event, as with any new technology, a "learning curve" may be involved, whereby, once trained, workers should be able to apply future compliant coatings in approximately the same amount of time as currently available coatings. As a side note, staff has investigated whether or not gasoline-powered spray equipment are available. No spray equipment manufacturers were found that manufactured such equipment. Consequently, no significant adverse noise impacts are anticipated from implementing PAR 1113.

1-14 Potential adverse impacts to local fire protection services relative to greater use of acetone from implementing PAR 1113 has been evaluated in Chapter 4. The commentator is, therefore, referred to Chapter 4 of the Draft SEA. With respect to schools and other public services identified by the commentator, no significant adverse effects are anticipated. Regarding future job losses resulting from implementing PAR 1113, the commentator is referred to the Socioeconomic Economic Impact Assessment in the PAR 1113 Staff Report.

1-15 SCAQMD staff does not concur with the commentator's assumption that significantly more coatings will be used as a result of this rule, which would then result in increased electrical power needed to manufacture the low-VOC coatings or that more coatings will cause the generation of more solid waste from the disposal of empty paint cans. Manufacturers are required to supply lower-VOC products, not supply more coatings. In many areas, metal paint cans are recycled. Further, even if it were true that greater volumes future compliant coatings per unit area would be necessary, the additional power demand necessary to produce these additional volumes would not be considered an inefficient or wasteful use of energy or a significant impact.

1-16 SCAQMD staff does not concur with the commentator's assertion that significant aesthetic impacts will result from the use of low-VOC coatings due to defects in appearance after application because the rule contains a compliance schedule sufficient for coating formulators to produce acceptable quality low-VOC products. The current compliance proposal is a modification of an earlier version of PAR 1113 and is the result of input received during the Industry Working Group meetings. The current compliance schedule should ensure that formulators have sufficient time to reformulate products which exhibit the desired performance characteristics.

1-17 SCAQMD staff does not concur with the commentator's assertion that significant cultural resource impacts will occur due to potential negative impacts on the maintenance of "historic and ethnically significant architectural structures in Southern California." First, industrial maintenance coatings are not typically used for residential use or for use in painting the outside of buildings, although some nonflat coatings may be used for a structure's exterior trim. In spite of this, based upon information on currently available compliant products, performance characteristics of existing and reformulated products should be sufficient to meet the weathering impacts on outdoor structures. That is particularly true in light of the fact that the rule contains a compliance extension requested in this comment letter to ensure that newly developed products exhibit these characteristics.

The commentator cites a 1997 *Los Angeles Times* article and a letter to the editor from the commentator implying that the Craftsman- and Victorian-style bungalows are being stuccoed because of the high cost and greater frequency of painting these houses. This assertion demonstrates a fundamental misunderstanding of the issue involved. The high costs are due to restoration of houses that have been poorly maintained for years, if not decades. Restoration of these houses require substantial repair, as well as surface reconstruction and preparation before the house is even painted. As a result it is much simpler and cheaper to stucco a house than perform the needed repairs to restore the historical architectural integrity. Further, stucco is applied to the exterior walls, which are typically painted with flat coatings. The currently proposed amendments do not modify the VOC content of flat coatings In any event, painting these houses is a relatively small part of the cost of restoring these old houses.

1-18 SCAQMD staff does not concur with the commentator's assertion that additional recreational resources will be required as a result of workers allegedly made jobless by the proposed amendments. SCAQMD staff has conducted socioeconomic analysis which showed minimal job impacts (the commentator is referred to the Socioeconomic Impacts Assessment contained in the Staff Report for PAR 1113).

1-19 Extensive discussion of air quality, water quality, hazard, and public service impacts were included in the Draft SEA prepared for this rule amendment. As noted in the response to comments #1-11 and #1-17, significant adverse impacts to energy and cultural resources, respectively, are not anticipated as a result of implementing PAR 1113.

1-20 As noted in the commentator's comment, the document cited and enclosed in a March 2, 1994 letter to the SCAQMD was previously submitted to the SCAQMD during the rule promulgation process for the 1996 amendments to Rule 1113. The document cited by the commentator was included in the Final SEA for PAR 1113 (SCAQMD No. 960626DWS) and responses to comments were prepared which are incorporated by reference. The commentator is, therefore, referred to the Final SEA for PAR 1113 (SCAQMD No.

960626DWS) with regard to specific responses to comments from the cited document. The Final SEA for PAR 1113 (SCAQMD No. 960626DWS) is available upon request from the SCAQMD's Public Information Center by calling (909)396-3600.

The recommended by the commentator presumes, incorrectly, that currently compliant products will be banned. Further, staff evaluated the coating product information sheets for a substantial number of both low VOC and currently compliant conventional coatings comprising a number of AIM coating categories. This evaluation identified coating characteristics such as VOC content, drying time, pot life, shelf life, durability characteristics, etc. The products evaluated are listed in the Tables in Appendix D, which are summarized in Table 4-2 in Chapter 4 of the Draft SEA.

1-21 This comment summarizes a number of the issues already identified in this comment letter. The following is a list of topics mentioned by the commentator and where to find the SCAQMD's response: adverse impacts to housing, #1-17; comparison of conventional coatings to future compliant coatings, #1-20 and Chapter 4; hazards associated with acetone, #1-20 and Chapter 4; greater use of coatings ,#1-15 and Chapter 4; energy and mineral resources, #1-11.

1-22 The analysis of potential adverse impacts that could be generated by implementing PAR 1113 is contained in Chapter 4 of this EA. The analysis of potential adverse impacts includes a project-specific analysis of impacts as well as an analysis of cumulative impacts when they are significant as required by the CEQA Guidelines.

COMMENT LETTER #1a

ELRAP - MILFORD, ET AL.

COMMENT LETTER #1a
ELRAP – Milford, et al.
December 1, 1998

1a This is a 1989 journal article that presents results of a modeling study of the responses of photochemical pollutant concentrations to VOC and NOx emissions reductions. This study is cited by the commentator to support his assertion that, "…VOC reductions can promote rather than inhibit ozone formation…" To the contrary, one of the conclusions of this document is, "ROG [VOC] controls are predicted to be most effective in those areas where high NOx levels are maintained and radical concentrations suppressed through midday." The document also states, however, "Moreover, the analysis indicates a strategy of controlling NOx emissions in combination with ROG [VOC] emissions would help reduce ozone, PAN, and inorganic nitrate simultaneously." As shown in Table 1c-1, this strategy of controlling both NOx and VOC emissions is consistent with SCAQMD's rule adoption strategy over the last decade as well as the 1997 AQMP ozone attainment strategy, which includes control measures expected to reduce NOx emissions 103 tons per day and VOC emissions 178 tons per day by 2006. The currently proposed amendments to Rule 1113 implement Phase II of the 1997 AQMP control measure #97CTS07 – Further Reductions from Architectural Coatings – Rule 1113, as well as 1994 AQMP control measure #94CTS07.

See also the responses to comments #1-3 and #1b-1.

COMMENT LETTER #1b

DUNN EDWARDS- KESSLER & ASSOCIATES, INC.

COMMENT LETTER #1b
Dunn Edwards – Kessler & Associates, Inc.
December 1, 1998

1b-1 The three statements attributed to the NOP/IS are accurate. With regard to reactivity, the SCAQMD does not dispute the fact that different VOCs have different reactivities. VOC control based on reactivity, however, is not currently a viable regulatory approach because of the limited amount of specific information available regarding actual or relative reactivities of the many VOCs used in coatings products.

AQMD staff disagrees with the commentator's implication that the SCAQMD's mass VOC emission control strategy may be counterproductive to ozone reduction. As discussed in Chapter 4 of the Draft SEA, the science of VOC reactivity is still in its early stages, with more comprehensive studies being conducted to refine VOC reactivity data. Until these studies are completed, the SCAQMD agrees with the EPA that it would not be prudent to implement a control strategy for VOC emissions based principally on VOC reactivity at this time. In its 1995 Report to Congress entitled "*Study of Volatile Organic Compound Emissions From Consumer and Commercial Products*," the EPA concluded, "To be most effective, ozone control strategies ideally should be based not only on mass VOC and NOx emissions but should consider the relative photochemical reactivity of individual species, the VOC-to-NOx ratios prevalent in specific airsheds, and other factors which could work together to minimize the formation of ozone with adverse impacts. Reactivity data on VOC, especially those compounds used to formulate consumer products and commercial products, is extremely limited. Better data, which can be obtained only at great expense, is needed if the EPA is to consider relative photochemical reactivity in any VOC control strategy. In the meantime, a practical approach is to act on the basis of mass VOC emissions." Thus, until more comprehensive VOC reactivity studies are completed that yield more refined speciation profiles for architectural coatings, the SCAQMD will continue to use a mass VOC control strategy. The SCAQMD welcomes any new scientific data that industry can provide to aid the SCAQMD in moving from a mass VOC emissions reduction strategy to a control strategy based on VOC reactivity.

In general, the relative contribution of a specific VOC under different atmospheric conditions needs to be better understood before data can be used for policy-making. Dr. William Carter recently received funding for a three million dollar ozone chamber, which will include studying VOC reactivity. The SCAQMD is also contributing funding to this ozone chamber. A working group will be established to guide reactivity research. It is expected that it will take 18 to 24 months to have the chamber running. The results of future studies may result in sufficient information to include reactivity-based control provisions in Rule 1113 and other coatings rules.

Reactivity-based regulations have also been discussed at Industry Working Group meetings (meeting #2, 10/7/98; meeting #3, 11/4/98; and meeting #4, 12/9/98). At Industry Working Group meeting #3, Dr. Carter explained that EPA does consider whether a VOC is reactive or non-reactive. EPA staff feels the high uncertainties of the MIR values would not make it a sound strategy until values are refined. EPA and private groups have established NARSTO to coordinate research related to reactivity policy.

While vehicle exhaust has been extensively studied for reactivity, it was only three years ago that glycols, esters, ketones, etc. were being studied. Uncertainty values vary for the best understood species by 30 percent for absolute reactivity and 20 percent for relative reactivity. For species that have not been studied extensively, uncertainty can be much greater. The value of the uncertainties is very difficult to isolate, but attempts to numerically identify uncertainties have been made.

Some specific problems (scientific issues) associated with reactivity-based regulations include:

- Assumptions in the current airshed models are too simplified, and do not represent airshed conditions in Basin.
- Studying the reactivity of halogenated compounds is frustrating because currently there is no way to simulate reactivity under current models and chamber conditions.
- Information on the reactivity of alcohol amines indicates that there is a high degree of uncertainty associated with the reactivity of these compounds and additional study is necessary.
- The reactivity of aromatics is still not well understood and current mechanism may not correlate well.
- Quantifying reactivity uncertainties is difficult – particularly for most compounds found in architectural coatings.
- The existing atmospheric chamber is not for studying reactivity in low-NOx environments.

NOx levels also effect the reactivity, absolute concentrations. Temperature and light intensity can also affect reactivity, but this relationship has not yet been studied. In urban areas, time and place of VOC and NOx emissions can also have effect; Absolute reactivity is scenario dependent and is more variable, whereas relative reactivity is less scenario dependent, and therefore less variable, and is the more important scale. The current scenarios represent the center of urban areas' NOx levels. The maximum incremental reactivity varies for each VOC species. Generally, under current scenarios, the VOC:NOx ratio is approximately 6.0, which is consistent with NOx levels in the downtown area of Los Angeles.

1b-2 The commentator is referred to the responses to comments #1b-1 and #1-3.

1b-3 SCAQMD staff has evaluated a seasonal regulation alternative that would allow architectural coatings with VOC content limits higher than those contained in PAR 1113 and rejected it as an infeasible alternative for the following reason. Based on discussions with industry, it has been suggested that this alternative may be infeasible because it may be difficult for coatings distributors to manage architectural coating stocks to ensure that only compliant coatings are sold during the high ozone season. As a result, this alternative is rejected as infeasible. See also the discussion in Chapter 5 of "Alternatives rejected as infeasible."

In addition to the issues identified by staff, one commentator (see comment letter #3) expressed concerns with a seasonal alternative because of the additional costs to coatings retailers of changing their stocks up to four times per year. Another concern raised by this commentator was the SCAQMD's ability to enforce a seasonal alternative.

COMMENT LETTER #1c

ELRAP

COMMENT LETTER #1c
ELRAP (6/24/98)
December 1, 1998

1c-1 As noted by this comment, VOCs contribute to ozone formation. Refer to response to comment #1-3 for a discussion of the need to control VOC emissions.

1c-2 In this comment, the commentator provides general information about atmospheric concentrations of NOx and VOC. Although it is correct that most of the NOx in the atmosphere is from anthropogenic sources, the assertion that 60 percent of atmospheric VOCs comes from natural sources is not correct. According to the 1997 AQMP, man-made sources produce a substantial portion of the VOC emission inventory in the district (see also Table 1c-1). The commentator also states that in the relative absence of NOx controls, VOC emission controls "have proven effectively marginally at reducing peak ozone levels. In the last decade, the SCAQMD has implemented a number of NOx control rules, in addition to VOC control rules, that has produced declining actual and future projected emission inventories (see Table 1c-1). Although the district still has the worst ozone problem in the nation, ambient ozone concentrations have declined as a result of implementing vigorous NOx and VOC control strategies. For example, in the past few years, ozone air quality has been the cleanest on record in terms of maximum concentration and number of days exceeding the standards and episode levels. Maximum 1-hour average and 8-hour average ozone concentrations in 1997 (0.21 ppm and 0.14 ppm) were 168 percent and 169 percent of the federal 1-hour and 8-hour standards, but lower than the previous three years. Ozone concentrations exceeded the 1-hour state standard at all but one monitored locations in 1997. There was only one stage I episode in 1997, compared to the record low of seven days recorded in 1996.

1c-3 It is not clear what evidence the commentator bases his assertion that architectural coating emissions inventory data are inconsistent with monitoring data. Based on the air quality modeling and the emissions inventory contained in the AQMP, architectural coatings contribute a substantial amount of VOC emissions to the atmosphere, which, in turn, contribute to ozone formation. The 1997 AQMP emissions inventory data for architectural coatings are summarized in the following table.

Table 1c-1
1997 AQMP Baseline and Future Baseline Emissions Inventories
(tons per day)

AIM Coating VOC Baseline	1987	1990	1993	1997	1999	2000	2002	2005	2008	2010
Annual Avg.	55.3	55.9	56.3	57.8	58.9	59.4	61.1	63.4	65.7	67.3
Summer Avg.	65.2	65.9	66.4	68.2	69.5	70.1	72.0	74.7	77.5	79.4
Total VOC Emissions All Sources	1818.5	1648.3	1240.2	996.6	916.0	891.4	858.9	810.4	785.5	770.1
Total NOx Emissions	1302.6	1413	1194.3	1002.7	915.7	881.9	815.5	750.3	712.1	696.8

Source: 1997 AQMP, Appendix II

CARB's 1998 "Survey of Emissions from Solvent Use" is expected to be published in early 1999. Preliminary evaluation of the 1996 sales data indicates statewide AIM coating VOC emissions in 1996 of approximately 99 tons per day. Prorated by population to the Basin portion of SCAQMD, this results in 45 tons per day. These data do not include the clean-up and thinning solvents used as a part of the coating operation. The usage and emission values found in the preliminary CARB report are subject to changes based on the final 1998 CARB Survey Report.

1c-4 In this comment, the commentator implies that changes in coatings technologies are driven by market forces. The behavior of manufacturers in developing lower-VOC coatings and the public's acceptance of those products have occurred in conjunction with regulatory limits being placed on the products. There is no indication that the market would have moved at the same speed or to the same extent absent environmental regulations. The fact that EPA published a national AIM coatings rule in September 1998 to meet the obligations of Section 183(e) of the Clean Air Act, also indicates their position that regulations are necessary to drive the market forces. In addition, a study prepared for Inform Inc., a non-profit environmental research organization, entitled *Stirring Up Innovation: Environmental Improvements in Paints and Adhesives*, found that environmental regulation have been a strong driving force promoting innovation in the paint industry.

The commentator also indicates that coatings regulations are ineffective because they are based on two flawed assumptions. The first assumption is that reducing the VOC content of architectural coatings reduces total VOC emissions. The second assumption is that reducing VOC emissions from architectural coatings reduces peak ozone levels. With regard to each of these issues, the commentator is referred to the responses to comments #1-3 and #1b-1.

1c-5 The commentator is referred to the responses to comments #1-3 and #1b-1.

1c-6 The commentator is referred to the responses to comments #1-3 and #1b-1.

1c-7 This comment recommends that the SCAQMD consider innovative approaches to regulating architectural coatings. More detailed recommendations are given in comments 1c-8 through 1c-16. Please refer to the responses to these comments.

1c-8 The commentator is referred to the responses to comments #1-3 and #1b-1.

1c-9 The concept for a performance-based rule provision or project alternative was originally raised by members of the Industry Working Group (see "Industry Working Group Meetings" discussion in Chapter 2). Rather than establish lower VOC content requirements for specified categories of coatings, this alternative would establish emission standards based on emissions per area covered or coating durability.

This alternative was rejected as infeasible because the Industry Working Group could not reach consensus on how to establish performance standards as this depends on the type of application or coating technology. For example, alkyd-based coating formulations currently have a life cycle of five to seven years, while urethane-based coating formulations may have a life cycle of approximately 20 years. Agreement could not be reached concerning the appropriate standard for each type of coating technology. As a result, this alternative has been dropped from further consideration.

1c-10 The commentator is referred to the responses to comments #1c-9.

1c-11 With regard to architectural coatings inventories, the commentator is referred to the response to comment #1c-3. With regard to a reactivity based architectural coating regulation, the commentator is referred to the response to comment #1b-1.

1c-12 A low vapor pressure exemption was discussed during Industry Working Group meetings #2 (10/7/98) and #3 (11/4/98). One of the issues identified was the fact that for some VOCs, e.g., Texanol, current methods of measuring low vapor pressure are not readily usable because they are not very precise or reliable. Before a low vapor pressure exemption provision can be considered, other measuring or test methods need to be developed.

In addition, according to CARB, regulations are under consideration to include a low vapor pressure exemption, which was initially meant for high molecular weight resins, surfactants, detergents, and parafins/waxes commonly found in consumer products. For CARB's Consumer Products Rule, however, staff is proposing to delay implementation of the low vapor pressure exemption. Prior to implementation, CARB will evaluate how much of these new solvent mixtures that meet the LVP definition are found in consumer products and design a study to assess the fate of LVP solvents. The study is expected to occur no earlier than the end of 1999.

The low vapor pressure exemption under consideration by CARB is for consumer products where the organic compounds are washed away. These typically do not evaporate into the air. For architectural coatings, the intent of solvents is to evaporate and go into the air. The approved test method for measuring VOC (Method 24) yields low vapor pressure compounds as VOCs, therefore, they should not be considered exempt in architectural coatings regulations. For this reason, a low vapor pressure exemption is not considered to be a feasible alternative.

1c-13 This comment is a recommendation to include a product line averaging provision to regulate architectural coatings. A product line averaging provision is included in PAR 1113.

1c-14 The seasonal deregulation alternative was discussed during Industry Working Group meeting #1 (9/3/98). At this meeting, members indicated that contractors are often involved in long-term projects and as a result, coatings must be available year round. Further, industrial maintenance coating contractors are often involved with very specialized projects, where changes to coatings specifications are not possible. For these types of projects, specific coatings must also be available year round.

Based on discussions with industry, it may be difficult for coatings distributors to manage architectural coating stocks to ensure that only compliant coatings are sold during the high ozone season. As a result, this alternative is rejected as infeasible. See also the discussion in Chapter 5 of "Alternatives Rejected as Infeasible."

In addition to the above issues, one commentator (see comment letter #3) expressed concerns with a seasonal alternative because of the additional costs to coatings retailers of changing their stocks up to four times per year. Another concern raised by this commentator was the SCAQMD's ability to enforce a seasonal alternative.

Based upon all of the above reasons, a seasonal deregulation alternative is currently considered to be infeasible.

1c-15 A similar concept to regional deregulation (geographic shift control strategy) was considered as a project alternative to the 1997 AQMP. For this AQMP alternative, air quality modeling was performed to determine its viability. The results of the analysis indicated that the geographical shift alternative was difficult to model because the model is dependent on meteorological conditions. For example, depending on the meteorological conditions used, it was difficult to determine whether or not an exceedance in one source receptor area (SRA) was due to the emissions sources in that SRA or the result of wind conditions in which emissions from an upwind SRA were transported to a second SRA, causing a violation in the second SRA. For this reason a regional deregulation alternative was rejected as infeasible. See also the discussion "Alternatives Rejected as Infeasible" in Chapter 5.

1c-16 The SCAQMD already has a public outreach program through the SCAQMD's Public Advisor's Office. The Public Advisor's Office prepares brochures that include information on additional steps the public can take to reduce air pollution, see for example "25 Ways You Can Clean the Air" or "What You Need to Know About Water-based Cleaners." With regard to coatings, the SCAQMD currently has available a brochure called "The Painter's Guide." In addition to written material, staff in the Public Advisor's Office is available to give presentations to local community groups and organizations on air pollution and reducing emissions. Staff also attends special events such as ride share fairs – setting up booths, for example – to distribute information about air pollution and reducing emissions. In spite of these activities, the SCAQMD must continue adopting and implementing NOx and VOC control rules because the SCAQMD cannot take any credit for potential emissions from educational or voluntary programs.

1c-17 In this comment, the commentator recommends that serious consideration be given to some of the alternative regulatory approaches previously described in this comment letter. The alternatives recommend for consideration include the following: exemption for low volatile compounds (see response to comment #1c-12); seasonal deregulation (see response to comment #1c-14); regional deregulation (see response to comment #1c-15); reactivity based regulation (see response to comment #1b-1); performance based standards (see response to comment #1c-9); product line averaging (see response to comment #1c-13); and public advisories/voluntary action (see response to comment #1c-16).

With the exception of the proposal for public advisories/voluntary action, all of these alternatives have been discussed in one or more Industry Working Group meetings. As noted in some of the above responses, a number of issues were identified in the Industry Working Group meetings for several of the alternatives, e.g., the low vapor pressure exemption alternative, seasonal deregulation, regional deregulation, and reactivity. These issues and other issues identified by staff renders most of the recommended alternatives as infeasible.

COMMENT LETTER #1d

ELRAP

COMMENT LETTER #1d
ELRAP (7/26/96)
December 1, 1998

1d It is unclear why comment letter #1d was included in the packet of comments on the currently proposed amendments to Rule 1113 as it was previously submitted to the SCAQMD in response to a June 14, 1996, Notice of Preparation of a Draft EA for PAR 1113 (SCAQMD No. 960613DWS). The amendments under consideration at that time reinstated a small container exemption into Rule 1113.

In this comment letter, the commentator summarizes a timeline of events associated with the process of reinstating the small container exemption into Rule 1113. The bulk of the letter, however, explains why the commentator disagrees with the conclusion in the Draft SEA that reinstating the small container exemption will result in a significant adverse air quality impact.

As explained in the response to comments, incorporated herein by reference, staff disagreed with the commentator's assertion that reinstating the small container exemption would result in a net air quality benefit. Based upon the analysis contained in the 1996 Final EA (SCAQMD No. 960613DWS), it was concluded that reinstating the small container exemption would result in a VOC emission increase of 0.55 tons per day (1,100 pounds per day), which exceeds the SCAQMD's VOC significance threshold of 55 pounds per day. For additional information, the commentator is referred to the 1996 Final EA for PAR 1113 (SCAQMD No. 960613DWS).

COMMENT LETTER #1e

ELRAP

COMMENT LETTER #1e
ELRAP (10/6/97)
December 1, 1998

1e With regard to the letter to the editor and the associated *Los Angeles Times* article, the commentator is referred to the response to comment #1-17.

COMMENT LETTER #2

LAW OFFICES OF SMILAND & KHACHIGIAN

COMMENT LETTER #2
Law Offices of Smiland & Khachigian
December 1, 1998

2-1 It is unclear what the commentator is referring to when he states that, "…the NOP admits (at 1-8) that the 'project' for which the South Coast AQMP (sic) proposes to prepare a Draft SEA has not been defined,…" The NOP includes a summary of PAR 1113 beginning on page 1-5 of the Initial Study. Further, a copy of PAR 1113 is included in the NOP/IS as Appendix A.

The SCAQMD is aware of its responsibilities pursuant to CEQA to analyze project-specific impacts and cumulative impacts when they are significant (CEQA Guidelines §§15126 and 15130, respectively). The topics identified on pages 2-6 and 2-7 are analyzed in detail in Chapter 4 of the Draft SEA. See also responses to comments #1-8, #1-12, #1-21, #1c-5, and #1c-6.

2-2 The commentator is referred to the responses to comment #2-1.

2-3 The statement in the NOP that the project was previously considered in the 1997 AQMP and in a 1990 EA is for background information. The SCAQMD is not relying on either of these two documents to serve as the CEQA document for the currently proposed amendments to Rule 1113. The Draft SEA prepared for PAR 1113 analyzes potential adverse impacts specifically from the current PAR 1113. The analysis is based upon the most currently available data and information.

2-4 The commentator is referred to responses to comments #1-3 and #1b-1.

2-5 According to the 1997 AQMP, Appendix III, mobile sources, both on-road and off-road, generate over 60 percent of the total 1993 VOC emissions inventory. The mobile source inventory is provided by CARB and the SCAQMD is required by law to use this inventory.

2-6 The commentator is referred to the responses to comments #1-3, 1a, and #1b-1.

2-7 The commentator is referred to the responses to comments #1-3and #1b-1.

2-8 An additional opportunity to comment on the environmental analysis for PAR 1113 is afforded the commentator during the comment period for the Draft SEA.

COMMENT LETTER #3

SHERWIN WILLIAMS

COMMENT LETTER #3
Sherwin Williams
November 25, 1998

3-1 It is assumed that by regulatory options the commentator is referring to potential project alternatives. Potential alternatives recommended by the Industry Working Group for consideration include the following: exemption for low volatile compounds (see response to comment #1c-12); seasonal deregulation (see response to comment #1c-14); regional deregulation (see response to comment #1c-15); reactivity based regulation (see response to comment #1b-1); performance based standards (see response to comment #1c-9); product line averaging (see response to comment #1c-13); and public advisories/voluntary action (see response to comment #1c-16). The commentator is also referred to Chapter 5 of the Draft SEA for a description and analysis of the currently proposed project alternatives. If this comment refers to alternative regulatory coating categories, the commentator is referred to the response to comment #3-6.

3-2 Although it is true that the SCAQMD has contracted a study with NTS, the proposed amendments do not rely on this study for the development of PAR. Staff has conducted an exhaustive and comprehensive analysis of currently available low VOC coatings that forms the primary basis for PAR 1113. This analysis evaluated hundreds of coatings from approximately 12 manufacturers and considered the following coating characteristics: VOC content, percent solids by volume, coverage, adhesion, durability, pot life, shelf life, gloss, and drying time. These issues are discussed in Chapter 4 of the Draft SEA. To the extent information is available from the NTS study, it will be incorporated into the analysis.

3-3 CARB has been collecting sales data which is expected to provide more precise information on the architectural coating emission inventory in the district. Though the CARB study is important, it does not provide information relevant to establishing specific VOC content limits.

3-4 The SCAQMD disagrees with the commentator's assertion that, "…developing the NOP and draft SEA prior to such a decision on the final proposal…is contrary to sound governmental policy." Under CEQA, the CEQA process must be completed prior to a final decision on a project.

3-5 The NOP/IS for PAR 1113 was circulated for a 30-day public review and comment period.

3-6 Compliant interior and exterior coatings are currently available for clear and semi-transparent stains. Opaque (semi-solid) stains are typically manufactured for exterior use only. However, compliant stains are available for all three types of stains. For clear and semi-transparent stains, 9 percent and 15 percent respectively, are recommended for both interior and exterior (dual) usage. Different interior and exterior VOC limits for the same category substantially impact the enforceability of the rule, especially in cases where the same formulation is recommended for dual uses.

Staff has found compliant coatings for each use (a-g). . Staff has analyzed the use of the lower-VOC technologies for a variety of uses. The low- and zero-VOC industrial maintenance coatings are recommended for a variety of industrial uses, including but not limited to refineries, chemical facilities, food processing, pulp and paper manufacturing, bridge, pipeline, and wastewater treatment facilities.

Staff has found both single-component and two-component low- and zero-VOC coatings for a variety of uses. Therefore, staff believes that creating separate categories for single- and multi-component coatings is unnecessary. Rule 1107 – Metal Coatings, also has several other requirements, such as recordkeeping. Facilities under Rule 1107 also fall under New Source Review requirements and, therefore, have a daily facility cap of emissions and coating usage. Rule 1113 has neither requirement.

Staff has found compliant individual coatings, as well as complete systems that comply with the proposed limits. Please review the draft staff report for an extensive discussion of industrial maintenance coatings and systems.

Staff has found compliant primers, sealers, and undercoaters for a variety of uses, including interior and exterior uses. The CARB survey indicates that almost 1/3 of all primers, sealers, and undercoaters are for dual (both interior and exterior) uses. Different interior and exterior VOC limits for the same category substantially impact the enforceability of the rule, especially in cases where the same formulation is recommended for dual uses.

Nonflat coatings, as defined in the proposed amended rule are not floor or rust preventative coatings. The proposed amended rule has two new categories for floor and rust preventative coatings. Staff has found compliant nonflats for a variety of uses, including interior and exterior uses. The CARB survey indicates that over 40 percent of all nonflats are recommended for dual (both interior and exterior) uses. Different interior and exterior VOC limits for the same category substantially impact the enforceability of the rule, especially in cases where the same formulation is recommended for dual uses.

The PAR 1113 includes an averaging provision which can be used by the coating manufacturers to continue marketing non-compliant coatings, and allow an end-user to take a similar approach on a systems basis.

3-7 The District has proposed an additional category called Rust Preventative Coatings in PAR1113.

3-8 The commentator is referred to the responses to comments #1-3 and #1b-1.

3-9 This comment is a recommendation to include a product line averaging provision to regulate architectural coatings. A product line averaging provision is included in PAR 1113.

3-10 SCAQMD staff has evaluated a seasonal regulation alternative that would allow architectural coatings with VOC content limits higher than those contained in PAR 1113 and rejected it as an infeasible alternative for the following reason. Based on discussions with industry, it has been suggested that this alternative may be infeasible because it may be difficult for coatings distributors to manage architectural coating stocks to ensure that only compliant coatings are sold during the high ozone season. As a result, this alternative is rejected as infeasible. See also the discussion in Chapter 5 of "Alternatives rejected as infeasible."

In addition to the issues identified by staff, this commentator expressed concerns with a seasonal alternative because of the additional costs to coatings retailers of changing their stocks up to four times per year. Another concern raised by the commentator was the SCAQMD's ability to enforce a seasonal alternative.

3-11 The primary focus of the proposed project alternatives is VOC content limits and alternative compliance dates. The commentator is referred to Chapter 5 of the Draft SEA for descriptions and analyses of the proposed project alternatives. With regard to the commentator's recommendation to units of grams of VOC per liter rather than the current "less water" VOC calculation method, please refer to the response to comment #4-14.

3-12 The SCAQMD disagrees with the commentator's assertion that noise impacts will increase with the use of future compliant low VOC coatings, especially those applications where coatings are applied by brush or roller. Coating application systems that rely on pressure and a power source have very low noise levels associated with them. In any event, as with any new technology, a "learning curve" may be involved, whereby, once trained, workers should be able to apply future compliant coatings in approximately the same amount of time as currently available coatings.

Regarding surface preparation, staff evaluated hundreds of conventional and low VOC coatings (see Tables in Appendix D and the summary tables in Chapter 4 of the Draft SEA). Where information or data are provided, the information indicated that low VOC coatings do not require substantially different surface preparation, including sandblasting, than conventional coatings. As a result, the time necessary to prepare a surface for coating is approximately equivalent for conventional and low VOC coatings. For these reasons, no significant adverse noise impacts are anticipated from implementing PAR 1113.

3-13 It should be noted that sandblasting is a surface preparation technique that is and has been widely used as a means of surface preparation. Specifically with regard to surface preparation, staff evaluated this characteristic as part of the evaluation of coating product data sheets mentioned in preceding responses (see also the tables in Appendix D and the summary table in Chapter 4 of the Draft SEA). Where information or data are provided, the information indicated that low VOC coatings do not require substantially different surface preparation than conventional coatings. As a result, it is not anticipated that the use of sandblasting as a method of surface preparation will increase substantially as a result of implementing PAR 1113. Consequently, no significant adverse hazard impacts from sandblasting are expected.

3-14 Wastes from sandblasting are not anticipated to increase substantially for the same reason identified in the response to comment #3-13. Consequently, no significant adverse solid/hazardous waste impacts are expected as a result of implementing PAR 1113.

3-15 As mentioned in response to comment #3-2, one of the characteristics that staff evaluated regarding currently available low VOC coatings is pot life. The analysis of potential environmental impacts in Chapter 4 includes an analysis of potential impacts related to pot life of multi-component low VOC coatings.

3-16 Contractors building new housing will be required to use compliant coatings on and after the proposed compliance dates listed in the Table of Standards in Rule 1113. Based upon information on currently available compliant products (see the discussion in Chapter 4), performance characteristics of existing and reformulated products should be sufficient to meet the weathering impacts and other performance characteristics on new construction. In addition, PAR 1113 has been modified, such that the first compliance date milestone has been moved from July 1, 2001, to January 1, 2002. This delay will allow coatings manufacturers additional time to formulate their products. The commentator is also referred to response to comment #1-7.

3-17 The commentator is correct that there is no regulatory requirement to eliminate from AIM coatings the specific solvents mentioned. In surveying conventional and low VOC AIM coatings (see the tables in Appendix D), however, staff noted a trend of coating formulators to move away from formulating low VOC coatings with hazardous materials when possible. Further, although mineral spirits are not carcinogenic or teratogenic, they are highly flammable. Generally, replacement solvents would be less flammable. Regarding potential hazard impacts associated with architectural coatings formulated with acetone, the commentator is referred to the response to comment #1-12. See also Chapter 4 of the Draft

EA for a more complete discussion of hazard impacts associated with both conventional and replacement solvents.

COMMENT LETTER #4

NATIONAL PAINT & COATINGS ASSOCIATION

COMMENT LETTER #4
National Paint & Coatings Association
December 1, 1998

4-1 Although it is true that the SCAQMD has contracted a study with NTS, the proposed amendments do not rely on this study for the development of PAR. Staff has conducted an exhaustive and comprehensive analysis of currently available low VOC coatings that forms the primary basis for PAR 1113. This analysis evaluated hundreds of coatings from approximately 12 manufacturers and considered the following coating characteristics: VOC content, percent solids by volume, coverage, adhesion, durability, pot life, shelf life, gloss, and drying time. To the extent information is available from the NTS study, it will be incorporated into the analysis.

4-2 PAR 1113 has been rescheduled to be considered by the SCAQMD Governing Board at the May 14, 1999 Public Hearing.

4-3 The NTS study does include actual exposure tests that will be conducted in three locations within the Basin, including El Segundo, Saugus, and Fullerton. Staff will analyze the results of the actual exposure studies and utilize these as a part of technical assessments for future limits.

4-4 The proposed amendments do rely on low VOC coatings technology. This is typically the way the SCAQMD's rule promulgation process works, i.e., develop new rules or amend existing rules based upon on low emission technologies that are currently available. SCAQMD staff's exhaustive and comprehensive analysis of currently available low VOC coatings forms the basis for PAR 1113. This analysis evaluated hundreds of coatings from approximately 12 manufacturers and considered the following coating characteristics: VOC content, percent solids by volume, coverage, adhesion, durability, pot life, shelf life, gloss, and drying time. These issues are discussed in Chapter 4 of the Draft SEA. Further, PAR 1113 has been modified, such that the first compliance date milestone has been moved from July 1, 2001, to January 1, 2002. This delay will allow coatings manufacturers additional time to formulate their products.

In addition to staff research, the SCAQMD established an Industry Working Group (see the discussion in Chapter 2) that has met five times since September 3, 1998. These Industry Working Group meetings have addressed many of the issues raised in the comments on the NOP/IS and has resulted in modifications to PAR as identified in the response to comment #4-5. Consequently, the Rule 1113 amendment process can be characterized as, "…a thorough, open minded, and objective evaluation of existing and reasonably foreseeable coatings technologies in setting future VOC limits."

4-5 Staff has analyzed the national AIM rule's categories and definitions, as well as the VOC limits. Staff believes that adding additional categories into the Table of Standards with the default 250 g/l limit will add to confusion, instead of simplifying the rule. For example, the national AIM rule has separate categories for interior and exterior nonflats, but has the same VOC limit. This does not add any simplicity to the rule, just redundancy. The current Rule 1113 – Architectural Coatings currently contains an exemption for coatings sold in containers having a capacity of one quart or less (Rule 1113(g)(1)(A)). Staff has created two new coating categories: floor coatings and rust preventative coatings. However, the current and future proposed VOC limits are different than those found in the national AIM rule. Staff has adopted the national AIM rule definitions and provisions for some categories, where appropriate.

4-6 Regarding a low vapor pressure exemption, the commentator is referred to the response to comment #1c-12.

4-7 Regarding performance based standards, the commentator is referred to the response to comment #1c-9.

4-8 Regarding a reactivity based alternative, the commentator is referred to the responses to comments #1-3 and #1b-1.

4-9 This comment is a recommendation to include a product line averaging provision to regulate architectural coatings. A product line averaging provision is included in PAR 1113.

4-10 Regarding regional deregulation, the commentator is referred to the response to comment #1c-15.

4-11 Regarding a seasonal regulatory approach, the commentator is referred to the response to comment #1c-14.

4-12 With regard to the comments that there is no reasonably foreseeable technology that would achieve the limit and the limit might be appropriate for some applications and not others, the commentator is referred to the response to comment #4-5. With regard to costs, the commentator is referred to the Socioeconomic Impact Assessment in the Staff Report for PAR 1113. Finally, with regard to holding off further drafting of the proposed revisions to Rule 1113, the Public Hearing for PAR 1113 has been delayed from February 12, 1999, to May 14, 1999. This delay has provided additional time for consideration of PAR 1113 by the Industry Working Group and staff.

4-13 The commentator is referred to the response to comment #4-5.

4-14 The SCAQMD utilizes the USEPA approved test method for VOC content of architectural coatings. An alternative test method for testing VOC content of architectural coatings (especially low- VOC coatings) has been developed, and is currently undergoing validation testing. This alternative test method, also known as the direct injection method, relies on a GC/MS analysis, and reports the results in percent VOC. The SCAQMD supports the work on the direct injection method, and looks forward to adoption by the USEPA.

4-15 A non-compliant coating fee is essentially a pay-to-pollute proposal. The SCAQMD has resisted such proposals in the past because they do nothing to bring the district into compliance with state and federal standards, and may actually hinder attainment efforts. Further, The US EPA has indicated in the past that it will not approve pay to pollute proposals unless there is a specified emission reduction proposal associated with the proposal. As a result, a pay-to-pollute will not be considered further.

4-16 The commentator is referred to the response to comment #1-12 regarding potential hazard impacts associated with architectural coatings formulated with acetone. With regard to plural coating systems, the commentator is referred to the response to comment #5-5. See also Chapter 4 of the Draft EA.

4-17 The analysis of environmental impacts in Chapter 4 of the Draft SEA includes an analysis of potential impacts to landfills from the use of two-coating systems The commentator is, therefore, referred to Chapter 4.

COMMENT LETTER #5

PPG INDUSTRIES, INC.

COMMENT LETTER #5
PPG Industries, Inc.
December 1, 1998

5-1 The commentator is referred to responses to comments #4-1 through #4-17.

5-2 Regarding the rule amendment schedule, the commentator is referred to the responses to comments #3-2, #4-1 and #4-2.

5-3 The proposed VOC limit of 250 g/l for stains is based on a variety of 100 percent acrylic technologies that have been available in the marketplace for over five years. Numerous local, national, and international manufacturers of stains have this compliant technology available. Some of the manufacturers claim excellent performance for their 100 percent acrylic products. The commentator is referring to the Resydrol 586 resin technology, which is a hybrid resin based on an alkyd core and acrylic exterior. Staff has submitted a requests for PPGAF's analysis and laboratory studies on numerous occasions pertaining to their evaluation of the Vianova Resin's Resydrol technology. To date, PPGAF's staff, specifically Robert Gross, has not forwarded their testing information. In contrast, Vianova Resin has forwarded information showing performance of their stains based on the Resydrol 586 resin. Basically, this technology has been used in Europe for over ten years, and Vianova has over four years of actual exposure data from the US, showing good performance, without any flaking, cracking, or peeling. Therefore, if PPGAF has actual studies that show different performance, the SCAQMD again requests these studies. In summary, numerous types of technologies are currently available, and commercially available stains that comply with the proposed 250 g/l VOC limit, seem to perform just as well or even better than some of the alkyd technology. Therefore, staff has not received any empirical studies that show the need for more frequent recoating using the new, lower-VOC technologies.

5-4 Staff has shared the technologies for other coating categories in the working group meetings, as well as in the Draft Staff Report. If the commentator wishes to obtain additional information, or would like staff to facilitate meetings with suppliers of compliant technology, the commentator is encouraged to contact staff to set up a meeting.

5-5 The proposed definition for industrial maintenance coatings is the definition originally adopted in 1990, but invalidated in a court decision. The existing definition lists each resin type individually, with the same VOC limit for each resin type listed. The proposed definition clarifies the definition for this coating category by adding specific performance requirements necessary for industrial maintenance coatings, and removes the individual resins utilized for formulating coatings. For this category, compliant waterborne and high-solids coatings are available for all uses. Staff recognizes that a portion of compliant coatings rely on two-component formulations that have limited pot lives. The use of plural spray equipment mitigates issues relating to two-component coatings, whereas use of airless spray technology mitigates application issues relating to high-solids coatings. All of the safety issues have been extensively analyzed in the Draft SEA. In summary, staff has conducted a technology assessment and found commercially available technologies for a variety of industrial uses. However, if a manufacturer does have a specialty industrial maintenance coatings that cannot be formulated below the proposed compliance limits, that manufacturer can use the Averaging Provision option to continue selling the non-compliant coating.

5-6 The definition of stains has not been modified as part of PAR 1113. Based upon staff's research on available low VOC coatings, including stains, the 250 gram per liter limit is a viable limit. The commentator is also referred to the response to comment #5-4.

5-7 Staff would like to thank the commentator for the comments provided. In response, staff has re-addressed the proposed VOC limits and compliance dates, where appropriate.

COMMENT LETTER #6

BENJAMIN MOORE & CO.

COMMENT LETTER #6
Benjamin Moore & Co.
November 25, 1998

6-1 The commentator is referred to the response to comment #4-5.

6-2 The commentator is referred to the response to comment #4-14.

6-3 With regard to a reactivity-based alternative, the commentator is referred to the responses to comments #1b-1 and #1-3. With regard to an exemption for low volatile compounds, the commentator is referred to the response to comment #1c-12.

6-4 A product line averaging provision is included in PAR 1113. The commentator is referred to Chapter 2 – Project Description and PAR 1113 (Appendix A).

6-5 Staff assumes this comment refers to requiring a non-compliant coating fee. The commentator is referred to the response to comment #4-15.

6-6 With regard to the various studies, the rule amendment schedule and VOC content limits, the commentator is referred to the responses to comments #3-2, 4-1, and 4-2.

6-7 The SCAQMD would like to thank the commentator for proposing alternative future limits. However, staff has found compliant coatings for all affected categories, with performance claims equivalent to their high-solvent counterparts. Furthermore, the proposed alternative limits do not achieve the emission reductions necessary to implement the applicable AQMP control measure.

6-8 First and foremost, the proposed amended rule does not require completely solvent-free coatings. However, staff has gathered information on numerous zero-VOC and low-VOC resin technologies that do not have blocking or stain-blocking problems. Staff has also found numerous coatings for all affected categories, with performance claims equal to their higher-solvent counterparts. The lower VOC products do require more stringent surface preparation for proper application. Waterborne coatings typically dry much faster than their solvent-based counterparts, except during high humidity and low temperature conditions. However, such high humidity and low temperature conditions do not appear in most of the Basin during majority of the year.

6-9 The analysis of environmental impacts in Chapter 4 of the Draft SEA includes an analysis of potential impacts to landfills from the use of two-coating systems The commentator is referred to the response to comment #1-12 regarding potential hazard impacts associated with architectural coatings. See also Chapter 4 of the Draft EA.

COMMENT LETTER #7

BONA

COMMENT LETTER #7
Bona
December 1, 1998

7-1 It is likely that the issues identified on pages 2-6 and 2-7 of the IS do not apply to hardwood floors. These issues have been raised as part of past rule making efforts on Rule 1113 and, in fact, have been raised in response to the currently proposed amendments to Rule 1113 (see, for example, comment letter #1). These issues are addressed in Chapter 4 of the Draft SEA.

It is acknowledged, however, that commercially available water-based floor finishes have durability characteristics equal to or surpassing that of traditional solvent-based products.

7-2 Wood varnishes are not included in the NTS study because their VOC content limit is not affected by the currently proposed amendments. The results of the NTS study will be available to the public when it is completed.

7-3 As noted in response to comment #7-2, the VOC content limit of wood varnishes is not affected by the currently proposed amendments. As a result, prices for wood varnishes are not expected to be affected by PAR 1113.

7-4 As noted in response to comment #7-2, the VOC content limit of wood varnishes is not affected by the currently proposed amendments.

7-5 PAR 1113 has been modified to delay the compliance date for stains from July 1, 2001, to January 1, 2002 to allow additional time to develop compliant formulations. The commentator is referred to the responses to comments #7-6 and #7-7.

7-6 Waterborne coatings typically dry much faster than their solvent-based counterparts, except during high humidity conditions and low temperatures. However, such high humidity and low temperature conditions do not appear in most of the basin during majority of the year.

7-7 Viscosity of a coating is affected by temperature and humidity, recognizing that viscosity of a coating can increase with decreasing temperatures and increasing humidity levels. Staff has found compliant stains that have a similar viscosity to the higher VOC stains. However, such high humidity and low temperature conditions do not appear in most of the Basin during the majority of the year.

7-8 Staff agrees that some manufacturers may be circumventing the more stringent VOC limits by categorizing their coatings under the quick-dry categories. The quick-dry primers, sealers, and undercoaters, however, will be subsumed into the general primer, sealer, and undercoater category.

7-9 Potential alternatives recommended by the Industry Working Group for consideration include the following: exemption for low volatile compounds (see response to comment #1c-12); seasonal deregulation (see response to comment #1c-14); regional deregulation (see response to comment #1c-15); reactivity based regulation (see response to comment #1b-1); performance based standards (see response to comment #1c-9); product line averaging (see response to comment #1c-13); and public advisories/voluntary action (see response to comment #1c-16). The commentator is also referred to Chapter 5 of the Draft SEA for a description and analysis of the currently proposed project alternatives.

COMMENT LETTER #8

DU PONT

COMMENT LETTER #8
Du Pont
December 11, 1998

8-1 The proposed amendments do rely on low VOC coatings technology. This is typically the way the SCAQMD's rule promulgation process works, i.e., develop new rules or amend existing rules based upon on low emission technologies that are currently available. For PAR 1113 staff conducted an exhaustive and comprehensive analysis of currently available low VOC coatings that forms the primary basis for PAR 1113. This analysis evaluated hundreds of coatings from approximately 12 manufacturers and considered the following coating characteristics: VOC content, percent solids by volume, coverage, adhesion, durability, pot life, shelf life, gloss, and drying time. These issues are discussed in Chapter 4 of the Draft SEA. Further, PAR 1113 has been modified, such that the first compliance date milestone has been moved from July 1, 2001, to January 1, 2002. This delay will allow coatings manufacturers additional time to formulate 50 gram per liter products.

8-2 Regarding performance issues, the commentator is referred to the response to comment #8-1. These issues are discussed in Chapter 4 of the Draft SEA. Finally, even if it were true that lowering the VOC content level of coatings from 420 grams per liter to 50 grams per liter required more frequent applications, an individual could apply the 50 gram per liter coating an additional seven times and still obtain a slight air quality benefit. Based on staff research of available compliant coatings, no coatings were identified with such poor performance characteristics.

8-3 Staff has found commercially available coatings that comply with the VOC content limits for all affected coating categories, especially the January 1, 2002 VOC content limits. Most of these have been available and used for more than five years by a variety of local users. However, the SCAQMD appreciates the need for end-users to evaluate the performance of these coatings. Therefore, the proposed limits for industrial maintenance coatings have been raised for the industrial maintenance and nonflat coatings, and the compliance dates have been extended. Regarding use of these coatings, end-users can use non-compliant coatings for an additional three years after the future effective dates are implemented. Please refer to subsection 1113(c)(4) for the specific language of the sell-through provision. The compliance dates listed in the Table of Standards are specifically for manufacture, and not use.

8-4 With regard to analysis of currently available coatings see response to comment #8-1.

8-5 Staff has found numerous single-component and two-component, zero-VOC industrial maintenance coatings, with pot lives of up to three hours (see the tables in Appendix D). These can be brushed, rolled or sprayed using conventional coating gun technologies. However, staff recognizes that some fast-cure zero-VOC technologies require using plural spray technology. However, the increased cost of the application equipment is more than offset by the faster dry time and quicker turnaround time associated with the fast cure coatings. The final compliance date for the 100 g/l VOC limit for industrial maintenance coatings has been extended from July 1, 2001, to January 1, 2005, to provide adequate time for contractor training with the increased use of two-component coatings.

8-6 It is assumed that this comment's reference to new application methods refers to the potential increased usage of two-component coating systems, which require plural spray gun equipment. It should be noted that two-component coating systems are already used in certain applications, e.g., industrial maintenance applications. Although such equipment requires training to achieve desired coating characteristics, staff has not identified any hazards associated with plural spray gun equipment that are greater or more severe than currently used coating spray equipment.

8-7 The commentator is referred to the response to comment #8-1. Although the commentator doesn't mention in this comment any specific issues that may arise, Chapter 4 of the Draft SEA includes analysis of a wide range of potential impacts that may occur as a result of the proposed amendments. See also response to comment #4-2.

8-8 Based upon input from the Industry Working Group, the interim compliance date has been moved from July 1, 2001, to January 1, 2002. The final compliance date remains January 1, 2005, based on input from the coatings industry regarding how long it takes to formulate new coatings. The 100 gram per liter interim limit for applicable has not been modified due to the delayed interim compliance date and the available of compliant coatings currently on the market.

8-9 With regard to the NTS study, the commentator is referred to the response to comment #3-2. With regard to real world testing the commentator is referred to the response to comment #4-3. Finally, the NTS study will be made available to coatings manufacturers, as well as the public in general.

8-10 Rule 1113 already contains a provision, (c)(4), that allows the sale of coatings manufactured before the final compliance date for three years after the final compliance date.

8-11 CARB has been collecting sales data which is expected to provide more precise information on the architectural coating emission inventory in the district. Though the CARB study is important, it does not provide information relevant to establishing specific VOC content limits.

8-12 Staff has analyzed the use of the lower-VOC coating technologies for a variety of uses. The low- and zero-VOC industrial maintenance coatings are recommended for a variety of industrial uses, including but not limited to refineries, chemical facilities, food processing, pulp and paper manufacturing, bridge, pipeline, and wastewater treatment facilities.

8-13 The commentator is referred to the response to comment #8-8.

8-14 Staff is cognizant of the issues involved with use of low- and zero-VOC coatings. Extensive evaluation of hundreds of low VOC and conventional coatings indicates that low VOC coatings have comparable durability characteristics, such as corrosion resistance for example, compared to conventional coatings (see the tables in Appendix D and applicable summary table in Chapter 4). Consequently, the chances of corrosion failures are not significantly greater than with conventional coatings. With regard to economic impacts associated with PAR 1113, the commentator is referred to Socioeconomic and Cost Effectiveness Assessment.

8-15 Staff has conducted an extensive technology assessment for the PAR 1113, as well as analyzed the cost-effectiveness of proposal. The current version of PAR, in particular modifications to the Table of Standards, reflects this technology assessment.

8-16 The SCAQMD cannot provide any guidance to industry pertaining to documentation on pursuit of other avenues.

COMMENT LETTER #9

CARBOLINE COMPANY

COMMENT LETTER #9
Carboline Company
November 30, 1998

9-1 PAR 1113 contains a specific category for high temperature coatings, with a proposed limit of 550 g/l, effective January 1, 2002. Staff has found several compliant industrial maintenance coatings that have substantial service lives. These include, but are not limited to, Ameron's Polysiloxane coatings and Madison Chemical's two-component polyurethane coatings. Therefore, staff believes that a category for extreme performance is not required. For a more extensive discussion of industrial maintenance coatings, please review the industrial maintenance section in the draft staff report. Finally, staff is not aware of any nuclear facilities within the district, needing this specialty coating category.

9-2 The compliance date for the 100 g/l VOC content limit for industrial maintenance coatings has been extended from July 1, 2001, to January 1, 2005, to provide adequate time for contractor training with the increased use of two-component coatings. The interim compliance date for the VOC content limit of 250 g/l is proposed for January 1, 2002. Staff has analyzed the use of the lower-VOC technologies for a variety of uses. The low- and zero-VOC industrial maintenance coatings are recommended for a variety of industrial uses, including but not limited to refineries, chemical facilities, food processing, pulp and paper manufacturing, bridge, pipeline, and wastewater treatment facilities

9-3 Staff has found numerous single-component and two-component, zero-VOC industrial maintenance coatings, with pot lives of up to three hours. These can be brushed, rolled or sprayed using conventional gun technologies. However, staff recognizes that some fast-cure zero-VOC technology require the use of plural spray technology. However, the increased cost of the application equipment is more than offset by the faster dry time and quicker turnaround time associated with the fast cure coating.

9-4 The commentator is referred to the responses to comments #9-2 and #9-3.

COMMENT LETTER #10

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

COMMENT LETTER #10
Southern California Association of Governments
November 17, 1998

10-1 The SCAQMD agrees that the proposed project is not regionally significant per the Areawide Clearinghouse criteria. The Draft SEA will be sent to SCAG for further review and comment.

12/9/98 SCOPING MEETING ORAL COMMENTS

RESPONSES

The following summarizes the environmental-related comments received by the AQMD at the Public Workshop for PAR 1113. The comments have been grouped by environmental topic. Responses to each comment are also included.

Safety

Comment #1: Lane restrictions are often required when Caltrans paints bridges. Potential safety problems may occur if passerby's are exposed to hazardous materials.

Response #1: When Caltrans performs most types of work near roadways, lane restrictions already occur. With regard to safety problems, it is assumed the comment refers to greater use of two-component polyurethane IM coating systems to comply with the final compliance date of 2005 that may contain one of three forms of diisocyante, TDI, HDI, and MDI. TDI is considered to be a carcinogen, while all three can generate allergic reactions in sensitive individuals. The main concern is when the coating is sprayed onto the substrate. During the application process it may be possible that the diisocyante could volatilize and come into contact with motorists or pedestrians in the immediate area. Subsequent to release of the NOP/IS, PAR 1113 was modified to address this concern. New section (d)(8) in PAR 1113 prohibits spray application of two-component polyurethane resin coatings effective January 1, 2008. As a result of this modification to PAR 1113, safety problems are not anticipated to occur as a result of adopting PAR 1113.

Comment #2: New coatings may not have the appropriate brittleness and would not crack along with the infrastructure. The crack may be missed during infrastructure inspections and thus result in adverse safety impacts.

Response #2: Low-VOC coatings are available in a variety of formulations, depending on their recommended uses. For example, low- and zero-VOC coatings are available for industrial maintenance uses that have either a rigid film or an elastomeric film that provides flexibility. The use of each is dependant on the type of substrate to be coated, the exposure conditions for the substrate, and the desired service life of the coating.

Comment #3: There is the potential for public endangerment if coatings have short life-cycles or are less corrosive resistant, which may lead to destruction of infrastructure (e.g., water tanks, bridges, pipelines).

Response#3: Staff reviewed coating product data sheets (see the tables in Appendix D and the relevant summary tables in Chapter 4) to obtain durability information for low VOC coatings and conventional coatings. Based upon a comparison of the coating product information sheets, staff concluded that low VOC coatings have durability characteristics comparable to conventional coatings. Based upon staff research of coating product information sheets, no significant adverse infrastructure impacts are anticipated from implementing PAR 1113. Also, refer to the response to comment #1-9 regarding durability and other characteristics of low VOC coatings and the air quality analysis of issues identified by the architectural coatings industry.

Comment #4: High temperature indicating paints are used for safety reasons at refineries and other industrial sites. No compliant coatings are currently available for this safety-related use.

Response #4: To address this issue, PAR 1113 has been modified to include a high temperature industrial maintenance category with the following VOC content limits and compliance dates: 550 grams per liter by January 1, 2002, and 420 grams per liter by January 1, 2005.

Comment #5: Coatings for certain uses require government approval for safety-related purposes. For example, the interior of potable water systems require chemical evaluation by the National

Sanitation Foundation. FIFRA must approve products for use below the water line of piers. Military specifications require very specific products.

Response #5: Low- and zero-VOC coatings are available and approved for storage of potable water by the National Sanitation Foundation and ANSI. United Coatings and Madison Chemical are just two of the manufacturers that have NSF/ANSI approved zero-VOC coatings for interior of potable water storage tanks.

Human Health

Comment #6: Worker safety is a concern. Special handling and expertise may be required for reformulated coatings.

Response #6: It is assumed that this comment's reference to special handling and expertise refers to the potential increased usage of two-component coating systems, which require plural spray gun equipment. It should be noted that two-component coating systems are already used in certain applications, e.g., industrial maintenance applications. Although such equipment requires training to achieve desired coating characteristics, staff has not identified any hazards associated with plural spray gun equipment that are greater or more severe than currently used coating spray equipment.

In addition to consideration of coating equipment, worker safety concerns have been raised regarding the potential for increased usage of low VOC, two-component polyurethane IM coatings. These coatings are currently contain diisocyanates, which are hazardous materials. The primary concern is while spraying the coating onto the substrate when there is a small possibility that the diisocyanate could volatilize and be inhaled or otherwise come into contact with the worker. Since release of the NOP/IS, PAR 1113 has been modified to prohibit using spray equipment for two-component polyurethane IM coatings. Please see new rule section (d)(8).

Comment #7: Some reformulations are more toxic than conventional products, especially two-component, epoxy, and catalyzed systems. While workers may have appropriate safety equipment, the general population will be exposed to greater risks.

Response #7: The issue of hazardous solvents in two components systems has been addressed in the "Hazards" and "Human Health" sections in Chapter 4. In addition, since the release of the NOP/IS, PAR 1113 has been modified to include section (d)(8) which prohibits spraying two component polyurethane systems which are the coatings of most concern after January 1, 2005. By prohibiting the use of spray equipment is expected to eliminate potential human health impacts.

Comment #8: Special certifications for health and safety requirements are needed by certain industries. The nuclear power industry has special requirements to ensure the coated surfaces remain free from contamination or are readily cleaned. Reformulations may not be appropriate for this industry. Also, coatings for interiors of potable water systems must be approved by appropriate regulatory agencies to certify no harmful leaching would occur.

Response #8: There are no nuclear power industry facilities located within the South Coast Air Basin. Low- and zero-VOC coatings are available and approved for storage of potable water by the National Sanitation Foundation and ANSI. United Coatings and Madison Chemical are just two of the manufacturers that have NSF/ANSI approved zero-VOC coatings for interior of potable water storage tanks.

Air Quality

Comment #9: There is no direct relationship between VOC content and ozone formation. Reducing VOCs may or may not reduce VOC emissions depending on performance characteristics. Reducing total VOC emissions from coatings may or may not reduce ozone levels in the Basin depending on changes in the character, location, and timing of emission. Reducing emissions under certain conditions could increase ozone formation.

Response #9: Please refer to responses comments #1-3 and #1b-1 from comment letters #1 and #1b, respectively.

Comment #10: Failure of reformulated coatings lead to a greater number of applications and greater VOC emissions.

Response #10: Please refer to response to comment #3 above.

Waste

Comment #11: Reformulations with reduced pot lives will lead to additional disposal of additional hazardous wastes.

Response #11: Reduced pot life is an issue related to two-component coating systems. Staff contacted resin manufactures about this issue. Resin manufactures indicated that wastes from two-component coating systems are not hazardous wastes, but are disposed of simply as a solid waste. With regard to potential adverse impacts to landfills as a result of implementing PAR 1113, specifically the issue related to solid waste impacts resulting from shortened pot life, please refer to the solid waste analysis in Chapter 4.

Comment #12: PAR 1113 may require more equipment cleaning, which results in increased wastewater.

Response #12: The analysis of water resources impacts in Chapter 4 takes into account the increased generation of wastewater to clean equipment used to apply compliant coatings. The analysis indicated that this impact would not be significant. Please refer to the analysis in Chapter 4 for more detailed information.

General

Comment #14: If costs of materials increase, users may use cheaper products with adverse environmental impacts.

Response #14: Although specific environmental impacts were not identified, it is assumed that this comment refers to potential impacts resulting from the failure of low VOC coating systems for specific applications. Please refer to the response to comment #3 above.

Comment #15: Coating substitutions such as brick, siding, tiles, etc., may not perform as well or as efficiently in terms utilizing raw materials and energy. Coatings are typically the most efficient use of resources and energy to accomplish the intended aim. Thus, substitution of these alternative surface finishing methods would result in an increased burden on the total ecology.

Response #15: It is assumed that the commentator is implying that the performance characteristics of compliant low VOC coatings will be inferior to conventional coatings, so substitutions such as those identified by the commentator will need to be used. As noted in the response to comment #3, based on staff research of the product data sheets, there are, generally, a substantial number of low VOC coatings that are currently available, that have performance characteristics comparable to conventional coatings. In addition, there is no indication that brick, siding, and tiles would be substitutes for either interior or exterior flat coatings. See also the air quality analysis in Chapter 4.

Comment #16: The SCAQMD should consider innovative alternative approaches identified in the NOP. Exemption for low volatility compounds and a simplified averaging provision alternative should be explored. The existing averaging provision is not viable for use by coating manufacturers.

Response #16: Potential alternatives identified in the NOP/IS and discussed by the Industry Working Group for consideration include the following: exemption for low volatile compounds (see response to comment #1c-12); seasonal deregulation (see response to comment #1c-14); regional deregulation (see response to comment #1c-15); reactivity based regulation (see response to comment #1b-1); performance based standards (see response to comment #1c-9); product line averaging (see response to comment #1c-13); and public advisories/voluntary action (see response to comment #1c-16). The commentator is also referred to Chapter 5 of the Draft SEA for a description and analysis of the currently proposed project alternatives. If this comment refers to alternative regulatory coating categories, the commentator is referred to the response to comment #3-6.

Comment #17: Contractors will have a greater liability problem with unproven replacement coatings that are applied in environmentally sensitive or production areas, or where coating failure can cause structural, equipment and/or environmental damage that exhaust a contractor's financial resources to correct.

Response #17: Please refer to response to comment #3 and the air quality analysis in Chapter 4.

APPENDIX D

SUMMARY OF COATING CHARACTERISTICS

Due to the voluminous nature of the coating product sheets (~1000 sheets) from which the following data were derived, they are available upon request by contacting Lori Inga at (909) 396-3109.

NOTE: *Morton International, Vianova and Air Products are raw material manufacturers.*

TABLE D-1

Floor Coatings - from 420 g/l to 100 g/l (9 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Ameron Amercoat® 335 (2 comp epoxy acrylic)	288	43+/-3	229	600* psi	Abrasion resistance 130 mg loss	1 year retention	8 hrs / 1 yr.
Dunn Edwards ULTRASHIELD® Aliphatic Polyurethane Enamel Pigmented IP 630	420	54	425-550	Good; clean, dry surfaces	Chemical, impact resistance	90 + @60 deg; gloss retention	6-8 hrs / 1 yr
Dunn Edwards ULTRASHIELD® Aliphatic Polyurethane Enamel Pigmented IP 631	420	53	550	Good; clean, dry surfaces	Chemical, impact resistance	95 + @60 deg; gloss retention	6-8 hrs / 1 yr
Morton International MorKote™ 3000 (Acrylic concrete wall and floor)	114	36	193	n/a	4,000 scrubbing cycles	10 @60 deg	n/a / 1 yr
Pittsburgh Paints 3-110 Urethane Fortified Alkyd Floor and Deck Enamel Interior/Exterior	373	51.3 +/ 2	400-500	Coat w/paint thinner	Not resistant to high heat/ corrosion chemicals	75 @60 deg	n/a / 3 yrs
Pittsburgh Paints 3-814 Series – Exterior/Interior Floor and Deck Gloss-Oil Enamel	378	51.6 +/- 2	400-450	Back roll if sprayed	Not resistant to high heat chemicals	80 @60 deg	n/a / 3 yrs
Pittsburgh Paints Aquapon 97-53,54,97 Polyamide-Epoxy Tinting Bases	420	53.8 +/- 2	287-431	Apply to dry clean surface	Abrasion, impact, chemical resistant	70+ @60 deg ; loss due to prolonged exterior exposure	3.5-4 hrs / 3 yrs
Pittsburgh Paints Aquapon 97-51 Polyamide-Epoxy Tinting Base	399	47.2 +/- 2	246-369	Outstand-ing	Excellent abrasion, impact, chemical resistance	70 @60 deg; loss due to prolonged exterior exposure	12-24 hrs / 3 yrs
Pittsburgh Paints Aquapon WB 98-Line Waterborne Epoxy High Performance	230	38 +/- 2	203	Apply to clean dry primed surface	Impact, abrasion, stain resistant	70+@60 deg	6 hrs / 5 yrs

* Test method ASTM D2197

Average Summary of Samples	**338**	**47.5**	**356**				**8.5 hrs / 2.3 yrs**

TABLE D-2

Floor Coatings - from 100 g/l to 50 g/l (5 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Advanced Polymer Sciences Guardline Concrete Corrosion Resistant	100	91	490	500 psi	15,000 psi hydroblast	UV resistance 40+ yrs	30 mins / 1 yr
Ameron PSX® 700 (2 comp epoxy polyurethane)	84	90 +/- 3	481	1000*psi	Abrasion resistance 53 mg loss	Retains 50% @ 26 wks	4 hrs / 1 yr.
Benjamin Moore M58 Safety and Marking Latex	76	62	330	Apply to clean, dry surfaces	Vehicle/ foot traffic resistant	20% Gloss	4 hrs / 1 yr
Madison Chemical GemThane™ 1:4 Aromatic	78	94	500	800 psi	Chemical, abrasion resistant	Chalk & discolor due to UV exposure	1 + / 1 yr
Pittsburgh Paints 3-410 Series – Latex Floor and Deck Enamel	90	38.3 +/- 2	400	No special surface preparation	Tough, durable film	5-40 @60 deg	n/a / 5 yrs

* Test method ASTM D2197

Average Summary of Samples	**86**	**75.1**	**440**				**2.4 hrs / 1.8 yrs**

TABLE D-3

Floor Coatings - 50 g/l or less (13 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Characte r-istics	Pot Life @70 deg./ Shelf Life
Advanced Polymer Sciences Underguard High Performance Concrete Sealer	0	100	290	Concrete	15,000 psi hydroblast	Semi-clear.	15-30 mins / 1 yr
Air Products ADURA™ 50	0	40	200-400	>400** psi	Abrasion resistance 123 mg loss	78-97 @60 deg	2-3 hrs / 1 yr
Air Products ADURA™ 100	0	70	377	Good	Abrasion resistance 46.4 mg loss	95 @60 deg	3-5 hrs / 1 yr
Air Products ADURA™ 200	0	70	150-400	Excellent	Abrasion resistance 100 mg loss	95 @60 deg	5.5 hrs/ 1 yr
Coatings Resources Corp. CR-10	0	100	150-400	1710 psi*	13,500 psi	95 @60 deg	1 hr / 2yrs
Coatings Resources Corp. CR-11	0	100	150-400	Good	Abrasion resistant	90 @60 deg	1 hr / 2 yrs
Coatings Resources Corp. CR-13	0	100	150-400	1500 psi*	12,500 psi	High	1 hr / 2 yrs
Glass Shield Floor Guard 100 (2 comp polyurethane)	0	100	535	Excellent	Excellent	High gloss	30 mins / 2 yrs
Hart Polymers HP-100 (2-comp aliphatic polyurethane)	0	60	333	Pass*	Abrasion resistance <40 mg loss	>90 @60 deg	1.5-2 hrs / 1 yr
Hart Polymers HP-120 (2-comp epoxy/acrylic high gloss)	0	50	400-500	Pass*	Abrasion resistance <25 mg loss	Discolor from direct sunlight	2.5-3 hrs / 1 yr
Hart Polymers HP-320 (2-comp acrylic/epoxy)	0	55	300	Pass*	Abrasion resistance <25 mg loss	Discolor from direct sunlight	2.5-3 hrs / 1 yr
Hart Polymers HP-330 (2-comp epoxy)	0	100	500	Excellent	Abrasion resistance <25 mg loss	High	45 mins / 1 yr
Sherwin Williams ArmorSeal 650 SL/RC	0	100	50-160	Excellent	Abrasion, chemical, impact resistant	Full	40 min / 1 yr

* Test method ASTM D2197
* * Test method ASTM D4541-85

Average Summary of Samples	**0**	**80.4**	**331**				**1.9 hrs / 1.4 yrs**

TABLE D-4

Industrial Maintenance Coatings - from 420 g/l to 250 g/l (47 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Ameron Amershield® (2 comp aliphatic polyurethane)	264	73 +/-3	234	Excellent	Abrasion resistance, 60.2 mg loss	Retains gloss - 100 cleaning cycles	2.5 hrs / 1 yr
Ameron Amercoat® 450HS (2 comp aliphatic polyurethane)	287.5	66 +/- 3	530	Prime steel, concrete	Excellent abrasion resistance	Excellent	4 hrs / 1 yr
Ameron Amercoat® 892HS (single comp)	323	64 +/- 3	514	Prepare steel	Good abrasion resistance,	Semigloss	n/a / 1 yr
Ameron Amercoat® 90HS (2 comp epoxy-phenolic)	323	64+/-3	257	Prepare steel, concrete, aluminum	Excellent abrasion resistance,	Flat	4 hrs / 1 yr
Ameron Amerthane ® 487 (2 comp elastomeric polyurethane)	276	68 +/- 3	136	3500 psi (tensile strength)	Outstand-ing impact, abrasion/ good chemical, corrosion resistance	Semigloss	1 ¼ hrs / 6 months
Ameron Amercoat® 385 (2 comp multi-purpose epoxy primer)	276	66 +/- 3	265	>1000* psi	Excellent resistance - 1 yr after chemicals	Flat	3 hrs/ 1 yr
Ameron Amercoat® 185HS (single comp universal primer)	383	59 +/- 3	379	Prepare steel, aluminum	Protects against weatherin g	Flat	n/a / 1 yr
Ameron Amercoat® 5105 (single comp alkyd primer)	335	62 +/- 3	331	Bare steel	Corrosion resistant	Flat	n/a / 1 yr
Ameron Dimetcote® 21-9 (2 comp inorganic zinc silicate primer – steel)	293	79.9	427	500* psi	Corrosion resistant	Flat	4 hrs / 10 months
Ameron Amercoat® 68HS (3 comp zinc rich epoxy primer)	288	70 +/- 3	374	Excellent	Chemical resistant	Flat	16 hrs / 1 yr
Ameron Amercoat® 370 (2 comp epoxy primer)	300	63 +/- 3	202	>1000* psi	Corrosion resistant	Flat	4 hrs / 1 yr
Dunn Edwards BLOC-RUST® Red Oxide Alkyd Corrosion Inhibitive Primer 43-4	300	64	500-550	Prime surface	Corrosion resistant	Flat	n/a/ 1 yr

TABLE D-4 (CONTINUED)

Industrial Maintenance Coatings - from 420 g/l to 250 g/l (47 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Dunn Edwards Corrobar White Alkyd Corrosion Inhibitive Primer 43-5	345	56	500-550	Good; clean dry surfaces	Corrosion resistant	Flat	n/a / 1 yr
Dunn Edwards Paints Enduragloss 42-53 (single comp)	420	47	400-475	Clean, dull surfaces	Abrasive; corrosion resistant	85 –90 @ 60 deg.	n/a / 1 yr
Dunn Edwards High Build Industrial Epoxy Primer – IP714	340	59	250-300	Good; prime surface	Abrasive; corrosion resistant	High gloss	6-8 hrs / 1 yr
Dunn Edwards Low Sheen Pigmented Z 6243 (2 comp)	340	64.7	500-600	Clean, dull surfaces	Very good chemical; excellent stain resistance	20-25 @ 60 deg	8-10 hrs / 1 yr
Dunn Edwards SYN-LUSTRO® High Performance Alkyd Gloss Enamel – 10 Series	395	51	400-425	Apply to clean, dry surfaces	Abrasion resistant	85-90 @ 60 deg	n/a / 1 yr
Dunn Edwards Paints Ultrashield IP630 (2 comp)	420	54	425-550	Clean, dull surfaces	Abrasion resistance, 100 mg loss	90 @ 60 deg	6-8 hrs / 1 yr
ICI Devoe Speed Enamel #4110	420	45 +/- 1	300-400	Excellent '	Excellent corrosion resistance	Flat	n/a / 1 yr
ICI Devoe Speed Enamel #4318	383	49+/-1	300-400	Excellent '	Good	85 @ 60 deg	n/a / 1 yr
Madison Chemical Gemthane Precatalyzed Aliphatic Exterior Coating	320	68	350	Self-priming	Abrasion resistance, 82 mg loss	Resist weatherin g	12 hrs / 1 yr
Madison Chemical Gemthane S (single comp)	282	72	383	Apply to clean surfaces	Abrasion resistance, 60 mg loss	Suitable to chemical exposure	1-2 hrs / 1 yr
Madison Chemical Gemthane 1:4 Aliphatic Urethane	340	75-78	333	800 psi	UV, impact resistant	Excellent gloss retention	1-5 hrs / 1 yr
Pittsburgh Paints Aquapon 97-53,54,97 Polyamide-Epoxy Tinting Bases (2 comp)	420	53.8 +/- 2	287-431	Apply to dry clean surface	Abrasion, impact, chemical resistant	70+ ; loss due to prolonged exterior exposure	3.5-4 hrs / 5 yrs
Pittsburgh Paints 97-480 Silicone-Alkyd Finish Coatings	420	46.9 +/- 2	346	Prime surface	Heat/chalk resistant	85 @ 60 deg excellent gloss retention	n/a / 3 yrs

TABLE D-4 (CONTINUED)

Industrial Maintenance Coatings - from 420 g/l to 250 g/l (47 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Pittsburgh Paints 7-814 Industrial Gloss-Oil Interior/Exterior Enamel	420	51.3 +/- 2	350-500	Paint only in dry weather	Long lasting durability	75 @ 60 deg gloss will decrease with time	n/a / 3 yrs
Pittsburgh Paints 7-824 Industrial Interior Alkyd Low-Lustre Enamel	420	45.1 +/- 2	300-400	Easy applicatio n/excellent flow and leveling	Excellent blocking resistance	25-35 @ 60 deg	n/a / 3 yrs
Pittsburgh Paints 7-844 Industrial Interior Alkyd Semi-Gloss Enamel	420	45.6 +/- 2	300-400	Easy applicatio n/excellent flow and leveling	Excellent blocking resistance	50-75 @ 60 deg	n/a / 3 yrs
Pittsburgh Paints 7-852, 858 Industrial Rust Inhibitive Steel Primers	420	52.4 +/- 2	390-535	No special surface preparatio n	Rust inhibitive properties	Flat	n/a / 3 yrs
Pittsburgh Paints Lavax 23-Line Machinery Enamel	402	51.6 +/- 2	350-400	Can withstand effects from temp. changes	Durable, wear resistant	Eggshell	n/a / 3 yrs
Pittsburgh Paints Pitt-Glaze 16-Line High Solids Polyester-Epoxy Finish Coatings-Solvent (2 comp gloss)	313	65.6 +/- 2	175-265	Prime the surface	Chemical/ abrasion resistant	85 @ 60 deg	10 hrs / 3 yrs
Pittsburgh Paints Pitt-Glaze 16-Line High Solids Polyester-Epoxy Finish Coatings-Solvent (2 comp semi-gloss)	338	63.1 +.- 2	175-265	Prime the surface	Chemical/ abrasion resistant	45-60 @ 60 deg	10 hrs / 3 yrs
Pittsburgh Paints Pitthane 97-840 High Build Acrylic Aliphatic Urethane	420	59.9 +/- 2	160-240	Apply to dry, clean, primed surfaces	Not hydrostati c pressure resistant	Exception-al gloss/ color retention	4 hrs / 3 yrs
Pittsburgh Paints Speedhide 6-205 Quick-Drying Machinery and Equipment Primer	417	46.1 +/- 2	300-350	No special surface prep.	Great durability	Outstand-ing color retention	n/a / 3 yrs
Pittsburgh Paints Speedhide 6-252 Gloss Oil Interior/Exterior Enamel	377	53.2 +/- 2	450	No special surface prep.	Great durability	Outstand-ing color retention	n/a / 3 yrs

TABLE D-4 (CONTINUED)

Industrial Maintenance Coatings - from 420 g/l to 250 g/l (47 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Pittsburgh Paints Tankhide 97-630 Alkyd Paint Finish Coatings	420	46.6 +/- 2	186-212	Apply to dry, clean, primed surfaces	Used for exterior metal surfaces	Gloss initially; chalks w/ weathering	n/a / 3 yrs
Sure Coat Epoxigard	257	50	88	--	--	--	6 hrs / 1 yr
Tnemec Hi-Build Gloss Series 2H	384-422	49+/-2	524	Clean, dry surfaces	Good flow & hiding	Gloss	n/a / 1 yr
Tnemec Hi-Build Epoxoline Series 66 (2 component)	362-395	56+/-2	150-299	Clean, dry surfaces	Bench-mark perf-ormance	Chalks w/ extended UV exposure	10 hrs / 1 yr
Tnemec Hi-Build Epoxoline II #69 (2 component)	269-275	69+/-2	184-369	Clean, dry surfaces	Excellent abrasion resistance	Chalks w/ extended UV exposure	4-6 hrs / 1 yr
Tnemec Endura-Shield #71	387-442	54+/-2	557	Clean, dry surfaces	Abrasion, corrosion, chemical resistant	Excellent gloss/ color retention	4 hrs / 1 yr
Tnemec Endura-Shield #74	257-297	70+/-2	281-449	Clean, dry surfaces	Abrasion, corrosion, chemical resistant	Highly resistant to exterior weathering	2 hrs / 1 yr
Tnemec Versare Primers Series 4	342-383	54+/-2	346	Clean, dry surfaces	Rust inhibitive	Resistant to exterior exposure	n/a / 2 yrs
Tnemec Tneme-Zinc 90-97 (2 component)	320	63+/-2	337	Dry surface	Chemical; corrosion resistant	Possible multi-coats for desired hide/look	24 hr / 9 months
United Coatings Uniseal Water-based Epoxy Sealer (single comp)	330	14+/-1	250-400	Clean surfaces	Enhanced clean-ability	Black surface absorbs sun's heat	n/a / 1 yr
United Coatings Alumiseal Rust Inhibitive Metal Primer	420	55+/-2	250-300	Superior	Corrosion resistant	2000 hrs weather exposure	n/a / 1 yr

TABLE D-4 (CONCLUDED)

Industrial Maintenance Coatings - from 420 g/l to 250 g/l (47 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Vista Paint 910 Red Oxide Metal Primer	340	43.8	250-350	Outstand-ing	Outstand-ing corrosion resistance	Flat	n/a / 1 yr

*ASTM D4541 Test Method
' ASTM D3359-78 Test Method
ASTM D4060 Test Method

Average Summary of Samples	**354**	**58.1**	**352**				**6.3 hrs / 1.6 yr**

TABLE D-5

Industrial Maintenance Coatings - from 250 g/l to 100 g/l (~~26~~*27* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Ameron Amercoat® 220 (single component acrylic)	180	35+/-3	280	500 psi*	Abrasion resistance, 110 mg loss	Retains gloss - 1 year	n/a / 1 yr
Ameron Amercoat® 78HB (2 comp coal-tar epoxy)	228	78 +/- 3	417	Prepare steel	Good abrasion resistance	Flat	4 hrs / 1 yr
Ameron Amerlock® 400 (2 comp epoxy)	168	83 +/- 3	266	900* psi	Abrasion resistance, 102 mg loss	Semigloss ; retains gloss - 750 hrs of humidity	2.5 hrs / 1 yr
Ameron Amercoat® 151 (acrylic epoxy primer)	228	39+/-3	313	Good	Abrasion resistance 17 mg loss	Flat	12 hrs / 1 yr
AquaSurTech D45	250	33	177-258	Excellent	Excellent abrasion resistance	No peeling cracking, blistering P	6 hrs / 10 yrs
Benjamin Moore Epoxy Coating M45/M46	213	75	300	Good	Good abrasion resistance	40% Gloss	16 hrs / 1 yr

TABLE D-5 (CONTINUED)

Industrial Maintenance Coatings - from 250 g/l to 100 g/l (~~26~~*27* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Benjamin Moore Epoxy Coating M47/M48	134	77	155	Good	Exceptional chemical resistance	40% Gloss	16 hrs / 1 yr
Coatings Resources Corp. CR-24 High Build Epoxy Tank Lining	196	75	150-400	Excellent	Excellent	Medium gloss	2 hrs / 2 yrs
Morton International MorKote™ 1001 (High gloss topcoat)	135	44	235	Excellent '	1,000 scrubbing cycles	82 @ 60 deg	1 hr / 1 yr
Morton International MorKote ™ 1400 (High gloss topcoat)	205	42	400	Good/ excellent	No effect	91 @ 60 deg	n/a / 1 yr
Morton International MorKote ™ 1725 (general industrial topcoat)	114	41.5	400-500	Excellent	No effect (dull from acid)	84 @ 60 deg	n/a / 1 yr
Morton International MorKote ™ 1043 (Satin stain resistant coating)	129.4	35.8	400	1,000 cycles	1,000 scrubbing cycles	16 @ 60 deg	n/a / 1 yr
Morton International MorKote ™ 3000 (Acrylic concrete wall and floor)	114	36.9	400	n/a	4,000 scrubbing cycles	10 @ 60 deg	n/a / 1 yr
Pittsburgh Paints Aquapon WB 98-Line Waterborne Epoxy High Performance (2 comp)	230	38 +/- 2	203	Apply to clean dry primed surface	Impact, abrasion, stain resistant	70+ @ 60 deg	6 hrs / 3 yrs
Pittsburgh Paints Pitt-Glaze 16-Line High Solids Acrylic-Epoxy-Water (2 comp)	197	44.9 +/- 2	275-325	Prime the surface	Stain chemical resistant	85+ @ 60 deg	6 hrs / 5yrs
Pittsburgh Paints Pitt-Guard 97-144 Direct-to-Rust Coating (2 comp)	198	84.9 +/- 2	195-274	Prime the surface	Immersion service	25-45 @ 60 deg-not controlled	4 hrs / 5 yrs
Pittsburgh Paints Pitt-Tech 90-374 Interior/Exterior High Performance, High Gloss Industrial Enamel	250	36.7 +/- 2	200	Apply to clean dry surfaces	Durable; chalk/ humidity resistance	70-90 @ 60 deg	n/a / 5 yrs
Pittsburgh Paints Pitt-Tech 90-474 Interior/Exterior High Performance, Satin Industrial Enamel	250	38.4 +/- 2	200	Apply to clean dry surfaces	Excellent abrasion resistance; not heat resistant	20-25 @ 60 deg	n/a / 5 yrs
PRI Asphalt Technologies Epoxyguard	221	50	88	Good	Good abrasion resistance	Good chemical resistance	6 hrs/ 1 hr

TABLE D-5 (CONCLUDED)

Industrial Maintenance Coatings - from 250 g/l to 100 g/l (~~26~~*27* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Sherwin Williams B66-100 High Gloss	208	38 +/- 2	155-250	500 psi*	Abrasion resistance, 107 mg loss	Water reducible	n/a / 3 yrs
Sherwin Williams B66-200 Series Semi Gloss	208	38 +/- 2	155-250	500 psi*	Abrasion resistance, 107 mg loss	Water reducible	n/a / 3 yrs
Sherwin Williams Tank Clad HS Epoxy (B62-80 Series)	177	80+/-2	160-255	1000 psi*	Abrasion resistance, 120 mg loss; impact resistance 20 in./ lbs	Semigloss	2 hrs / 1 yr
Sherwin Williams Water Based Catalyzed Epoxy (B70-200)	176	39 +/- 2	200-250	350 psi*	Abrasion resistance, 126 mg loss; impact resistance 15 in lbs.	Water reducible	36 hrs / 1 yr
Sherwin Williams Zinc Clad VI (B69)	*163*	*45 +/- 2*	*241-361*	*480 psi*	*Impact resistance, 120 in. lbs.*	*Gloss varies*	*8 hrs / 1 yr*
Tnemec H.S. Epoxy #104	158-177	82+/-2	131-329	Clean, dry surfaces	Superior abrasion, stain resistance	Semi-gloss	1 hr / 1 yr
Tnemec Cryl SG Series 6 &7	169-258	43+/-2	276	Clean, dry surfaces	Excellent color retention	Matte (6) Gloss (7)	n/a / 1 yr
Vista Paint 4900 Duraprime	250	39	350-450	Clean surfaces	Corrosion resistant	Flat	n/a / 1 yr

*ASTM D4541 Test Method
ᴾ ASTM D2246 Test Method
' ASTM D3359-78 Test Method

Average Summary of Samples	~~194~~ *193*	~~52.5~~ *52.2*	~~273~~ *274*				**8 hrs/ 2.4 yrs**

TABLE D-6

Industrial Maintenance Coatings - 100 g/l or less (~~61~~ ~~55~~ *60* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Advanced Polymer Sciences Siloxiraine 2031	108	88.6	364	Good	Good impact resistance, 140 in.lbs	UV = 40+ years	2 hrs / 1 yr
Advanced Polymer Sciences Siloxirane 2032	108	89.6	384	2,850 psi*	Good impact resistance, 120 in.lbs	UV = 40+ years	2 hrs / 1+ yr
Advanced Polymer Sciences Siloxirane 2431	102	91	467	Excellent	Abrasion resistance: 2 mg loss/1000 cycles	High Build	8 hrs / 1 yr
Advanced Polymer Sciences Siloxirane 2432	102	91	513	Excellent	Abrasion resistance: 3.8 mg loss/1,000 cycles	High Build	2 hrs / 1 yr
Advanced Polymer Sciences Powerline Protective Lining	108	90	364	5,200 psi*	Resists hydro-blasting	Sunlight resistant	2 hrs / 1 yr
Advanced Polymer Sciences Underguard High Performance Concrete Sealer	0	100	290	Concrete surfaces	15,000 psi hydroblast	Good	15-30 mins / 1 yr
Air Products ADURA™ 50	0	40	214	>400 psi	Abrasion resistance, 123 mg loss	78-97 @ 60 deg	2-3 hrs / 1yr
Air Products ADURA™ 100	0	70	377	Good	Abrasion resistance, 46.4 mg loss	95 @ 60 deg	3-5 hrs / 1 yr
Air Products ADURA™ 200	0	70	377	Pass [z]	Abrasion resistance, 100 mg loss	95 @ 60 deg	5.5 hrs / 1 yr
Ameron Amercoat® 300 (2 comp epoxy)	0	44+/-3	253	Good	Good abrasion resistance	Gloss varies	45 mins / 6 months
Ameron Amercoat® 351 (2 comp 100% solids epoxy)	0	100	201	1200* psi	Abrasion resistance, 41 mg loss	Semigloss	1 hr / 1 yr
Ameron Amercoat® 395 (2 comp high solids epoxy – tank lining)	108	91 +/- 3	486	Prepare steel	--	Matte	10 hrs / 1 yr

TABLE D-6 (CONTINUED)

Industrial Maintenance Coatings - 100 g/l or less (~~*61*~~ ~~55~~ *60* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Ameron Amercoat® 428PC (2 comp 100% solids epoxy)	0	100	267	Prepare steel, concrete, aluminum	Good abrasion resistance	High gloss	½ hr / 1 yr
Ameron Dimetcote® 21-5 (2 comp inorganic zinc silicate primer)	0	62.8	336	1000* psi	Abrasion resistance, 40 mg loss	Retains gloss after 4 years	8 hrs / 1 yr
Ameron Nu-Klad 105A (2 comp epoxy primer and sealer)	0	100	250-400	Prepare concrete	Good	Subject to color change	n/a / 6 months
Ameron PSX® 700 (2 comp epoxy polyurethane)	84	90 +/- 3	481	1000* psi	Abrasion resistance, 53 mg loss	Retains 50% gloss @ 26 wks	4 hrs / 1 yr
Ameron PSX® 738 (2 comp comp)	96	84 +/- 3	270	Excellent	Resists acid & chemical	Flat	5 hrs / 8 months
Benjamin Moore M58 Safety and Marking Latex	76	62	330	Apply to clean, dry surfaces	Vehicle/ foot traffic resistant	20% Gloss	4 hrs / 1 yr
Coatings Resources Corp. CR-26 Solvent Resistant Epoxy Tank Lining	0	100	150-400	Excellent	Excellent	High gloss	30 mins / 1 yr
Coatings Resources Corp. CR-27 High Build Flexible Tank Lining	0	100	150-400	Excellent	Abrasion resistant	High gloss	1 hr / 1 yr
Coatings Resources Corp. CR-28 Food Grade Novolac Lining	0	100	150-400	Excellent	Corrosion resistant	No gloss	45 mins / 1 yr
Coatings Resources Corp. CR-32 High Solids Waterborne Quick Cure Urethane	0	80	427	Outstand-ing adhesion	Very chemical resistant	High, low medium	2 hrs / 1 yr
Coatings Resources Corp. CR-35 Solventless High Build Surface Tolerant Epoxy	0	100	150-400	Excellent	Corrosion resistant	70 @ 60 deg	45 mins / 1 yr
Coatings Resources Corp. CR-36 Solventless Gloss Epoxy Finish	0	100	150-400	Excellent	Corrosion resistant	90 @ 60 deg	1 hr / 1 yr
Coatings Resources Corp. CR-42 Epoxy Primer/Sealer	0	100	535	Carbon steel or concrete/ masonry	Water, chemical resistant	Gloss varies	45 mins / 1 yr
Coatings Resources Corp. CR-57 (High-Gloss Acrylic)	88	42	150-400	Excellent	UV resistant	80 @ 60 deg	n/a / 1 yr
Coatings Resources Corp. CR-58 (Semi-Gloss Acrylic)	88	42	150-400	Excellent	Excellent	50 @ 60 deg	n/a / 1 yr

TABLE D-6 (CONTINUED)

Industrial Maintenance Coatings - 100 g/l or less (~~*61*~~ ~~55~~ *60* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Coatings Resources Corp. CR-59 (Low-Gloss Acrylic)	88	42	150-400	Excellent	UV resistant	30 @ 60 deg	n/a / 1 yr
Coatings Resources Corp. Waterborne QD Urethane (CR32)	0	80	150-400	Excellent	Good	High, low medium	2 hrs / 1 yr
Coatings Resources Corp. Waterborne Urethane (CR-38)	0	80	150-400	Pass[∇]	Abrasion resistance, 175 mg loss	93 @ 60 deg	2 hrs / 1 yr
Genesis Coatings GCP 1000	0	58	275	Pass[z]	Pass[z]	90 @ 60 deg	2-5 hrs /1 yr
Glass Shield EP-Guard WB 1590 (2 comp)	93	44 +- 2%	235	Excellent	Excellent	High gloss	6 hrs / 1 yr
Glass Shield Floor Guard 100 (2 comp polyurethane)	0	100	535	Excellent	Excellent	High gloss	30 mins / 2 yrs
Gro-Mast 766-1005	60	61.19+-2%	248	Excellent	Excellent abrasion resistance	Excellent UV resistance	n/a / 1 yr
Gro-Mast 766-1018	60	61.19+-2%	248	Excellent	Excellent abrasion resistance	Excellent UV resistance	n/a / 1 yr
Harris Specialty Thorolastic	80	56 +-2%	100	Good	Good abrasion resistance	8 hrs, rain; no cracking	n/a / 1 yr
Harris Specialty Thorosheen	96	38 +-2%	200	Good	Good abrasion resistance	8 hrs, rain; no cracking	n/a / 1 yr
Harris Specialty Thoro Block Filler	66	54.08	100	Good	Good abrasion resistance	8 hrs, rain; no cracking	n/a / 1 yr
Hart Polymers HP-100 (2-comp aliphatic polyurethane)	0	60	333	Pass*	Abrasion resistance <40 mg loss	>90 @60 deg	1.5-2 hrs / 1 yr
Hart Polymers HP-200 (2-comp acrylic epoxy)	0	50	400	Pass*	Abrasion resistance 50 mg loss	3-5 hrs	2.5-3 hrs / 1 yr
Hart Polymers HP 210 (single comp acrylic urethane)	0	50	400-500	Pass[z]	Abrasion resistance, <25 mg loss	Good chemical resistance	n/a / 1 yr
Hart Polymers HP 220 (single comp polyurethane epoxy)	0	50	400-500	Pass[z]	Abrasion resistance, <25 mg	Good chemical resistance	n/a / 1 yr

TABLE D-6 (CONTINUED)

Industrial Maintenance Coatings - 100 g/l or less (~~*61*~~ ~~55~~ *60* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
MAB Ply Mastic Epoxy Coating	90	90+/-2	250	450-500 psi	Abrasion resistance, 75-87 mg* loss	Semi-gloss	n/a / 1 yr
Morton International MorKote™ 1035	94	38.7	400-500	Good	Excellent	Good	n/a / 1 yr
Morton International MorKote ™ 1043 (topcoat)	103	45	400	Excellent '	No effect	85 @ 60 deg	n/a / 2 yr
Morton International MorKote ™ 1725 (Topcoat airless spray)	84	39.3	400-500	Excellent	No effect (dull from acid)	90 @ 60 deg	n/a / 1 yr
Morton International MorKote ™ 1725 (High gloss interior finish)	102	32.9	400	1,000 cycles	700 scrubbing cycles	90 @ 60 deg	n/a / 2 yr
Morton International MorKote ™ 1725 (High gloss clear tint base)	107	34.9	400	Excellent	n/a	95 @ 60 deg	n/a / 2 yr
POLY-CARB MARK-46 Highly Chemical Resistant Epoxy Coating	0	100	100-250	5,000-7,000 psi	Excellent chemical resistance	High build	2-3 hrs / 2 yrs
POLY-CARB MARK-46.1 Epoxy Coating for Tank Lining, Secondary Containment and Flooring	0	100	100-150	5,000-7,000 psi	Excellent chemical, hydro-carbon resistance	High build	90 mins / 2 yrs
POLY-CARB MARK-46.1.1 Highly Chemical Resistant Epoxy Coating	0	100	80-100	5,000-7,000 psi	Excellent chemical/ corrosion resistance	High build	12-15 mins / 2 yrs
POLY-CARB MARK-46.1.3 Highly Chemical Resistant Epoxy Coating	0	100	100-250	5,000-7,000 psi	Excellent chemical resistance	High build	21-24 mins / 2 yrs
POLY-CARB MARK-46.2.1 Highly Chemical Resistant Coating and Grout	0	100	60-100	5,000-7,000 psi	Excellent chemical resistance	High build	28-35 mins / 2 yrs
POLY-CARB MARK-46.8 100% Solids Sprayable Aromatic Urethane Coating	0	100	175-200	3,500-4,000 psi	Excellent chemical resistance	High build	20-30 mins / 2 yrs
PolyQuik	0	100	533	3,229 psi	Abrasion resistance, 180 mg loss	Corrosion, chemical resistant	n/a / 1 yr

TABLE D-6 (CONCLUDED)

Industrial Maintenance Coatings - 100 g/l or less (~~*61*~~ ~~55~~ *60* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
Sherwin Williams Centurion B65W700	66	58 +-2%	282	800 psi*	Abrasion resistance, 45 mg loss	Gloss	4 hrs / 1 yr
Sherwin Williams Armorseal 650 SL/RC (2 component)	0	100	50-160	Provides nonslip texture	Abrasion, impact, chemical resistant	Full gloss	40 mins / 18 months
Sherwin Williams Tower-Guard HS (B54AZ600)	70	89+/-2	145-240	100 psi*	Abrasion resistance, 180 mg loss	Full gloss	n/a / 3 yrs
Sherwin Williams UHS Primer	40	98 +-2%	400	800 psi	Abrasion resistance, 20.8 mg loss	Gloss varies	45 min / 3 yrs
~~Sherwin Williams Zinc Clad VI (B69)~~	~~48~~	~~45 +/- 2~~	~~241-361~~	~~480 psi~~	~~Impact resistance, 120 in. lbs.~~	~~Gloss varies~~	~~8 hrs / 1 yr~~
United Coatings Elastuff 504 Abrasion Resistant Polyurethane Rubber Coating (two comp)	2.4	43+/-2	100	4,400 psi	Abrasion resistance 35-40 mg loss	Color will dissipate with UV exposure	1 hr / 1 yr

z ASTM D2197 Test Method
*ASTM D4541 Test Method
∇ ASTM D4145-90 Test Method.
' ASTM D3359-78 Test Method

Average Summary of Samples	***39.6*** **~~44~~**	***74.9*** **~~71.6~~**	***308*** **~~324~~**				***2.4*** **~~2.8~~ hrs/** ***1.2*** **~~1.1~~ yr**

TABLE D-7

Nonflats - from 250 g/l to 150 g/l (~~10~~*14* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Benjamin Moore Impervex Latex High Gloss Metal and Wood Enamel #309	250	34	400-500	Excellent color retention; weather resistant	12 hrs	n/a / 5 yrs
Benjamin Moore Regal Semi-Gloss Aquaglo #333	250	34	400-450	Tough durable film	12 hrs	n/a / 5 yrs
Benajmin Moore Iron Clad Metal & Wood Enamel #363	250	34	350	Durable; washable	6-8 hrs	n/a / 5 yrs
Dunn Edwards Perma Sheen Acrylic Semi-Gloss Enamel W 901	215	34	350-375	Superior washable finish	2-4 hrs	n/a /1 yr
Dunn Edwards DECOGLO ® Acrylic Semi-Gloss W 450	235	37	300-400	Lasting durability	4-6 hrs	n/a /1 yr
Dunn Edwards DECOSHEEN® Acrylic Eggshell Enamel W 440	215	40	350-400	Extra tough; washability	8 hrs	n/a /1 yr
Dunn Edwards Permagloss Acrylic Gloss Enamel W 960	220	33	350-375	Stain resistant; washable finish	2-4 hrs	n/a /1 yr
Frazee Paint Production Gloss Enamel II #347	250	49.9	400	Excellent hide & build	12 hrs	n/a /1 yr
Frazee Paint Velglo II Interior Satin Gloss Enamel #328	250	56.1	450-550	Superb durability	18 hrs	n/a /1 yr
Pittsburgh Paints Brilliant Reflections 51-line Interior/Exterior Latex Gloss Enamel	250	38.4 +/- 2	400-450	Washable with soap and water	4 hrs	n/a / 5 yrs
Sherwin Williams ProClassic Waterborne Acrylic Semi-Gloss	*157*	*35+/-2*	*400*	*Washable*	*4 hrs*	*n/a / 1yr*
Sherwin Williams ProClassic Waterborne Acrylic Gloss (B-21)	*156*	*35+/-2*	*400*	*Washable*	*4 hrs*	*n/a / 1yr*
Sherwin Williams ProMar 200 Interior Latex Gloss Enamel	*193*	*38+/-2*	*400*	*Professional best line*	*4 hrs*	*n/a / 1yr*
Sherwin Williams EverClean Interior Satin (A97)	*187*	*40+/-2*	*400*	*>80% at 100 cycles of abrasive cleaners*	*4 hrs*	*n/a / 1yr*

Average Summary of Samples	**~~239~~** ***220***	**~~393~~** ***38.4***	**400**		**~~8.5~~** ***7.2*** **hrs**	**n/a / ~~2.6~~** ***2.1*** **yrs**

TABLE D-8

Nonflats - from 150 g/l to 50 g/l (~~29~~ *28* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Dunn Edwards Enduracryl Low Sheen Finish W 705	135	40	350-400	Superior durability; mildew resistance	2-4 hrs	n/a /1 yr
ICI Dulux Ultra-Hide Build-Dur Spray Latex Eggshell Interior 1472	77	35 +/- 1	200	High build	4-8 hrs	n/a / 1 yr
ICI/Dulux Paints Enhance 2000 (Wall and Trim Enamel)	84	29	400 – 450	Excellent	2-4 hrs	n/a / 1 yr
ICI/Dulux Latex Satin Finish 2403	105	36	300-400	Excellent	2-4 hrs	n/a / 1 yr
ICI/Dulux Ultra Hide Durus Exterior Acrylic Semi-Gloss Finish 2416	79	41	300-400	Excellent	4 hrs	n/a / 1 yr
ICI/Dulux Vinyl Acrylic 3010-1200	69	51	100	Excellent	Overnight	n/a / 1 yr
ICI/Dulux Ultra-Hide Buildtex Interior/Exterior Acrylic Latex 3230	88	54	120-240	Excellent	Overnight	n/a / 1 yr
ICI/Devoe BLOXFIL® 4000 Heavy-duty acrylic	67	45 +/- 1	241	Moisture, alkali resistant	Overnight	n/a / 1 yr
Morton International MorKote ™ 3000 (Acrylic concrete wall and floor)	114	36.9	197	4,000 cycles (scrub)	2 hrs	n/a / 1 yr
Pittsburgh Paints 19-510 Kitchen, Bath & Trim Semi-Gloss Enamel Acrylic Latex	107	29.8 +/- 2	400-500	Wash repeatedly	2 hrs	n/a / 5yrs
Pittsburgh Paints Pitt-Cryl 10-110 Exterior Water Base Paint	114	38.8 +/- 2	400	Mildew resistant	4 hrs	n/a / 5 yrs
Pittsburgh Paints Speedcraft 5-411 Interior Eggshell Latex Enamel	86	26.7 +/- 2	450	Not resistant to abrasion	4 hrs	n/a / 5yrs
Pittsburgh Paints Speedcraft 5-510 Interior Semi-Gloss Latex	85	26.2 +/- 2	400-450	Not resistant to high heat/strong chemicals	4 hrs	n/a / 5yrs
Pittsburgh Paints Speedhide 6-507 Hi-Build Latex Semi-gloss Prime, Fill and Finish	96	38.5 +/- 2	60-200	Not resistant to mildew	24 hrs	n/a / 5 yrs

TABLE D-8 (CONTINUED)

Nonflats - from 150 g/l to 50 g/l (~~29~~ *28* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Pittsburgh Paints Speedhide 6-510 Acrylic Latex Semi-gloss Enamel	119	29.2 +/- 2	400	Excellent washability	4 hrs	n/a / 5 yrs
Pittsburgh Paints Speedhide 6-900 Exterior Semi-gloss Latex House and Trim Paint	126	33.5 +/- 2	400	Good fade/ mildew/chalk resistance	4 hrs	n/a / 5 yrs
Pittsburgh Paints Speedhide 6-8510 Interior High-Lustre Semi-gloss Latex	107	29.8 +/- 2	400-500	Can be washed repeatedly	2 hrs	n/a / 5 yrs
Pittsburgh Paints Speedpro 14-510 Interior Semi-gloss Acrylic Latex	80	25.1 +/- 2	400-450	Not resistant to high heat/strong chemicals	4 hrs	n/a / 5 yrs
Pittsburgh Paints SunCare 2-810 Series – Exterior House and Trim Semi-Gloss Latex	134	32.7 +/- 2	400	No special surface preparation	4 hrs	n/a / 5 yrs
Pittsburgh Paints Sun-Proof 76-110 Ext House & Trim Acrylic Satin Latex	124	31.1 +/- 2	400	Contains mildewcide	4 hrs	n/a / 5yrs
Pittsburgh Paints Sun-Proof 78-45 Semi-gloss Acrylic Latex House & Trim Paint	79	33.7 +/- 2	400	Not resistant to high heat/strong chemicals	4 hrs	n/a / 5 yrs
Pittsburgh Paints WallCare 2-410 Series – Latex Semi-Gloss Enamel	119	30 +/- 2	400	Not for heavy traffic areas	4 hrs	n/a / 5 yrs
Pittsburgh Paints Wallfresh 32-45 Series – Interior Semi-Gloss Latex	59	26 +/- 2	400-500	Good washability	4 hrs	n/a / 5 yrs
~~Sherwin Williams ProClassic Waterborne Acrylic Semi-Gloss~~	~~70~~	~~35+/-2~~	~~400~~	~~Washable~~	~~4 hrs~~	~~n/a / 1yr~~
~~Sherwin Williams ProClassic Waterborne Acrylic Gloss (B-21)~~	~~70~~	~~35+/-2~~	~~400~~	~~Washable~~	~~4 hrs~~	~~n/a / 1yr~~
~~Sherwin Williams ProMar 200 Interior Latex Gloss Enamel~~	~~90~~	~~38+/-2~~	~~400~~	~~Professional best line~~	~~4 hrs~~	~~n/a / 1yr~~
Sherwin Williams SuperPaint Exterior High Gloss Latex Enamel (A85)	~~57~~ *119*	43+/-2	400	Moisture, gloss resistance	24 hrs	n/a / 1yr
~~Sherwin Williams EverClean Interior Satin (A97)~~	~~81~~	~~40+/-2~~	~~400~~	~~>80% at 100 cycles of abrasive cleaners~~	~~4 hrs~~	~~n/a / 1yr~~

TABLE D-8 (CONCLUDED)

Nonflats - from 150 g/l to 50 g/l (~~29~~ *28* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Sherwin Williams ProMar 400 Interior Latex Egg-Shel Enamel B20W400	~~121~~ *133*	29+/-2	400	Good quality	24 hrs	n/a / 1yr
Sherwin Williams LowTemp 35 Exterior Satin House Paint (B17)	*102*	*35+/-2*	*400*	*Water, oil resistant*	*48 hrs*	*n/a / 1yr*
Sherwin Williams A-100 Line – Satin (A82 – White)	*112*	*33 +/- 2*	*400*	*Water, oil resistance*	*4 hrs*	*n/a / 1yr*
Sherwin Williams A-100 Line – Gloss (A8 - White)	*134*	*33 +/- 2*	*400*	*Water, oil resistance*	*24 hrs*	*n/a / 1yr*
Average Summary of Samples	**~~94.5~~ *102***	**35**	**~~359~~ *357***		**~~6.7~~ *8.6* hrs**	**n/a / ~~2.9~~ *3* yrs**

TABLE D-9

Nonflats - 50 g/l and less (~~16~~ *13* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Con-Lux Enviro-Plex Acrylic Latex Eggshell Enamel-12000	0	48-50	395-525	10,000 cycles	18 hrs	n/a / 1 yr
Con-Lux Enviro-Plex Acrylic Latex Semi-Gloss Enamel – 11000	0	46-48	375-500	10,000 cycles	18 hrs	n/a / 1 yr
Con-Lux Enviro-Plex 100% Acrylic Gloss Enamel-13000	0	50-52	410-545	10,000 cycles	18 hrs	n/a / 1 yr
Dunn Edwards Sierra Interior Acrylic Eggshell Enamel W 540	0	38	350-400	Excellent hide	2-4 hrs	n/a /1 yr
Dunn Edwards Sierra Interior Acrylic Semi-gloss W 550	0	38	350-400	Excellent hide	2-4 hrs	n/a / 1 yr
Griggs Paint, Acrylic Emulsion (single comp Satin, Semi-gloss and gloss)	0	36-40	435	Extremely abrasion resistant and washable	2-4 hrs	n/a / 1 yr
ICI Dulux Lifemaster 2000 (Semi-gloss)	0	39	400	Excellent	6–8 hrs	n/a / 1 yr
ICI/Dulux 2000 (Interior eggshell)	0	40	400	Excellent	4 hrs	n/a / 1 yr

TABLE D-9 (CONTINUED)

Nonflats - 50 g/l and less (~~16~~ *13* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 deg./ Shelf Life
ICI/Dulux Exterior Acrylic Low Sheen 2403-0500	50	35	400	Excellent	12-16 hrs	n/a / 1 yr
ICI/Dulux Decra Shield DS88XX Satin Finish	0	37	300-400	Excellent	2-3 hrs	n/a / 1 yr
~~Sherwin Williams LowTemp 35 Exterior Satin House Paint (B17)~~	~~40~~	~~35+/-2~~	~~400~~	~~Water, oil resistant~~	~~48 hrs~~	~~n/a / 1yr~~
Sherwin Williams Healthspec Low Odor Interior	0	41+/-2	400	1300	4 hrs	n/a / 1yr
~~Sherwin Williams A-100 Line – Satin (A82 – White)~~	~~38~~	~~33 +/- 2~~	~~400~~	~~Water, oil resistance~~	~~4 hrs~~	~~n/a / 1yr~~
~~Sherwin Williams A-100 Line – Gloss (A8 - White)~~	~~49~~	~~33 +/- 2~~	~~400~~	~~Water, oil resistance~~	~~24 hrs~~	~~n/a / 1yr~~
Spectra-Tone Paint Enviro Interior Semi-gloss (9900)	0	33.2	400	Washable /excellent durability	4 hrs	n/a / 1yr
Vianova RESYDROL® 586	0	45	400	Good	8 hrs	n/a / 1yr
Average Summary of Samples	**~~11.1~~ *3.8***	**~~39.7~~ *41***	**~~407~~ *409***		**~~11.3~~ *8.1* hrs**	**n/a / 1 yr**

TABLE D-10

Quick-Dry Enamels - from 400 g/l to 150 g/l (6 samples)

(Numerous coatings listed in Nonflats meet the dry time and gloss requirements of a Quick-Dry Enamel)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Gloss Character-istics	Drying time to touch	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Benjamin Moore Super Spec Quick Dry Enamel #289	400	49.7	525	Outstand-ing semi-gloss	2 hrs	8 hrs	n/a / 1 yr
Dunn Edwards Rancho Quick Dry Alkyd Gloss Enamel QD60	400	50	400-425	85-90 @ 60 deg	1-2 hrs	6-8 hrs	n/a / 1 yr
Frazee Paint Classic II Quick Dry Exterior Gloss House and Trim Paint #352	400	75	400-500	Superior lasting quality/ color retention	1-2 hrs	12 hrs	n/a / 1 yr

TABLE D-10 (CONTINUED)

Quick-Dry Enamels - from 400 g/l to 150 g/l (6 samples)

(Numerous coatings listed in Nonflats meet the dry time and gloss requirements of a Quick-Dry Enamel)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Gloss Character-istics	Drying time to touch	Drying time to recoat	Pot Life @70 deg./ Shelf Life
ICI Dulux Acrylic Semi-gloss Interior Wall and Trim Enamel 1407	191	39 +/- 1	400	Durable semi-gloss	30–60 min	2-4 hrs	n/a / 1 yr
ICI Dulux Latex Eggshell Interior Wall and Trim Enamel 1412	184	32 +/- 1	400	Durable low-lustre	30–60 min	2-4 hrs	n/a / 1 yr
ICI Dulux Latex Low Lustre Interior Wall and Trim Enamel 1414	164	40 +/- 1	400	Durable low-lustre	30–60 min	2-4 hrs	n/a / 1 yr
Average Summary of Samples	**290**	**54.1**	**432**			**6.0 hrs**	**n/a / 1 yr**

TABLE D-11

Quick-Dry Enamels - from 150 g/l to 50 g/l (4 samples)

(Numerous coatings listed in Nonflats meet the dry time and gloss requirements of a Quick-Dry Enamel)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Gloss Character-istics	Drying time to touch	Drying time to recoat	Pot Life @70 deg./ Shelf Life
ICI Dulux Acrylic Eggshell Interior Wall and Trim Paint 1402	125	36 +/- 1	400	Durable eggshell	30-60 min	2-4 hrs	n/a / 1 yr
ICI Dulux Acrylic Eggshell Interior Wall and Trim Enamel 1403	112	41 +/- 1	400	Durable eggshell	30–60 min	2-4 hrs	n/a / 1 yr
ICI Dulux Acrylic Semi-gloss Interior Wall and Trim Enamel 1406	154	38 +/- 1	400	Durable semi-gloss	30–60 min	2-4 hrs	n/a / 1 yr
ICI Dulux Speed-Wall Latex Semi-gloss Wall and Trim Enamel 1456	88	28	400-450	34-45 @ 60 deg	30-60 min	2-5 hrs	n/a / 1 yr
Average Summary of Samples	**120**	**35.8**	**407**			**3.2 hrs**	**n/a / 1 yr**

TABLE D-12

Primer, Sealer, Undercoater - from 350 g/l to 200 g/l (~~28~~ *29* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Aquarius Coatings Armabrite 4241	309	67	500	Excellent	Resistant to solvent, chemicals, abrasion, graffiti, etc	4 hrs.	n/a / 1 yr
Aquarius Coatings Armaglaze 9000	268	61-69	500	Excellent	Resistant to solvent, chemicals, abrasion, graffiti, etc	8 hrs	6 hrs / 1 yr
Benjamin Moore Super Spec Alkyd Exterior Primer 176	350	56	500	Excellent	Stain resistant	Overnight	n/a / 1 yr
Dunn Edwards ALKYLSEAL® Interior Alkyd Pigmented Sealer E 28-1	350	56	400-450	Good; clean, dry surfaces	Good enamel holdout	24 hrs	n/a / 1 yr
Dunn Edwards COMPO Exterior Alkyd Primer/Undercoater 42-1	350	56	400-450	Apply to clean, dry surface	Excellent enamel holdout	> 24 hrs	n/a / 1 yr
Dunn Edwards SUPER-LOC® Two Component Waterborne Epoxy Masonry Primer W 718	310	42	150-350	Superior	Alkali/efflorescence resistant	6-8 hrs	6-8 hrs / 1 yr
Dunn Edwards SUPER U-365 Interior Alkyd Enamel Undercoater E 22-1	350	55	400-450	Excellent	Excellent enamel holdout	24 hrs	n/a / 1 yr
Dunn Edwards SURFACO® Masonry Surface Conditioner 42-52	310	61	200-400	Apply to clean, dry surfaces	Firm, adherent base	>16 hrs	n/a /1 yr
Dunn Edwards Ultra-Hide Oil/Alkyd Interior Wood Undercoater 1120-1200	347	56 +/- 1	400-450	Apply to clean, dry surface	Moisture resistant	Overnight	n/a / 1 yr
Frazee Paint Acry-Prime Interior Acrylic Undercoater	250	65.5	350-400	Excellent; clean surface	Blocking resistant	4 hrs	n/a / 1 yr
Frazee Paint Block-N-Prime Interior/ Exterior Acrylic Primer	250	46.8	250-400	Good; clean, dry surfaces	Corrosion resistant	4 hrs	n/a / 1 yr
Frazee Paint FRAFLO II Interior Enamel Undercoater	350	84.2	450	Prime clean, dry surfaces	Provides perfect foundation	Overnight	n/a 1 yr

TABLE D-12 (CONTINUED)

Primer, Sealer, Undercoater - from 350 g/l to 200 g/l (~~28~~ *29* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Glass Shield PreShield MC 46828	320	65 +- 2%	347	Excellent	Excellent	5 hrs	n/a / 1 yr
ICI Dulux Ultra-Hide Alkyd Prime-N-Finish 1310	347	55	400	Prime the surface	Durable finish	16 hrs	n/a / 1 yr
ICI Ultra-Hide Durus Exterior Acrylic Primecoat 2110-1200	313	60 +/- 1	400-500	Good	Stain, moisture resistant	24 hrs	n/a / 1 yr
Morton International MorKote™ 1043 Primer (Formula 924-41D)	267	23.2	124	Excellent	Excellent stain resistance	90 min	n/a / 1 yr
Pittsburgh Paints 17-255 Quick Drying Enamel Undercoater	349	57.9 +/- 2	450-500	No special surface preparation	Not for exterior use	24 hrs	n/a / 3 yrs
Pittsburgh Paints Aquapon WB 98-46 Waterborne Epoxy Primer	220	39.4 +/- 2	210	Prime surface	Impact, abrasion, stain resistant	16 hrs	n/a / 5 yrs
Pittsburgh Paints Seal Grip 17-21 Interior/Exterior Acrylic Latex Stain Blocking Primer	264	38.2 +/- 2	400	Sand surfaces	Stain resistant	1-4 hrs	n/a / 5 yrs
Pittsburgh Paints Speedhide 6-6 Quick-Drying Enamel Undercoater	349	56 +/- 2	450-500	No special surface prep	Not rust inhibitive	24 hrs	n/a / 3 yrs
Pittsburgh Paints Speedhide 6-9 Exterior Wood Primer	334	57.6 +/- 2	400	Avoid direct sunlight	Not for use as topcoat	24 hrs	n/a / 3 yrs
Pittsburgh Paints Speedhide 6-208 Rust Inhibitive Steel Primer	349	52.2 +/- 2	390-535	No special surface prep.	Rust inhibitive properties	5-8 hrs	n/a / 3 yrs
Pittsburgh Paints Speedhide 6-212 Rust Inhibitive Steel Primer	338	52.2 +/- 2	390-535	No special surface preparation	Rust inhibitive properties	5-8 hrs	n/a / 3 yrs
Pittsburgh Paints Speedhide 6-209, Galvanized Steel Primer	346	55.6 +/- 2	420-460	No special surface preparation	Good resistance to corrosion	24 hrs	n/a / 3 yrs

TABLE D-12 (CONCLUDED)

Primer, Sealer, Undercoater - from 350 g/l to 200 g/l (~~28~~ *29* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Sherwin Williams Water Based Catalyzed Epoxy (B70-200)	*209*	*39 +/- 2*	*200-250*	*350 psi*	*Abrasion resistance, 126 mg; impact resistance 15 in lbs.*	*18-24 hrs*	*36 hrs / 1 yr*
Vista Paint 088 Enamel Undercoat	350	57.5	300-400	Clean surfaces	Excellent sanding qualities	12 hrs	n/a / 1 yr
Vista Paint 1100 Hi Build Sealer	250	29	250-350	Apply to clean, dry surfaces	Excellent enamel holdout	2-3 hrs	n/a / 1 yr
Vista Paint 4100 Prime Kote	340	53	350-450	Excellent; clean surfaces	Uniform enamel holdout	24 hrs	n/a / 1 yr
Vista Paint 4900 Duraprime	250	39	350-450	Apply to clean surfaces	Superior corrosion resistance	2-4 hrs	n/a / 1 yr

Average Summary of Samples	**~~314~~ *310***	**~~51.4~~ *51***	**~~393~~ *387***			**13 hrs**	**~~6.5~~ *7.5* hrs / 1.7 yrs**

TABLE D-13

Primer, Sealer, Undercoater - from 200 g/l to 100 g/l (10 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Glass Shield PrimeTar MC 46750	206	76 +- 2%	408	Excellent	Excellent	4 hrs	6 hrs / 1 yr
Glass Shield Floor Guard WB 590	193	46 +- 2%	251	Excellent	Excellent	3 hrs	6 hrs / 1 yr
ICI Ultra-Hide Durus Exterior Acrylic Primecoat 2010-1200	143	32 +/- 1	400	Excellent	Moisture resistance	3-6 hrs	n/a / 1 yr
Kilz X-siding	160	75	400-450	Clean surface	2 coats for maximum durability	4 hrs	n/a / 1 yr
Morton International MorKote™ 1300 primer (Formula 997-68)	158	34.8	186	Good flow & leveling	Excellent blocking resistance	2 hrs.	n/a / 1 yr

TABLE D-13 (CONTINUED)

Primer, Sealer, Undercoater - from 200 g/l to 100 g/l (10 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Pittsburgh Paints 17-10 Quick-Drying Interior Latex Primer-Sealer	127	28.4 +/- 2	350-450	No special surface preparation	Not for use as topcoat	4 hrs	n/a / 5 yrs
Pittsburgh Paints Speedhide 6-603 Alkali Resistent Primer	113	37.1 +/- 2	400	No special surface preparation	Stain blocking properties	1 hr	n/a / 5 yrs
Pittsburgh Paints Speedhide 6-755 Waterbase Interior/ Exterior Undercoater	204	34.2 +/- 2	400	Apply on bare wood	Not for exterior use	2 hrs	n/a / 5 yrs
Pittsburgh Paints SunCare 2-510 – Exterior Latex Wood Primer	124	39 +/- 2	400	Dampen surface in hot dry weather	Mildew resistant	4-6 hrs	n/a / 5 yrs
~~Sherwin Williams Water Based Catalyzed Epoxy (B70-200)~~	~~176~~	~~39 +/- 2~~	~~200-250~~	~~350 psi~~	~~Abrasion resistance, 126 mg; impact resistance 15 in lbs.~~	~~18-24 hrs~~	~~36 hrs / 1 yr~~
Sherwin Williams Loxon Exterior Acrylic Masonry Primer (A24)	*130*	*40*	*200*	*154 psi*	*Pass**	*24 hrs*	*n/a / 1 yrs*

Average Summary of Samples	**~~160.4~~** *155.8*	**~~44.2~~** *44.3*	**~~350~~** *348*			**~~5~~** *5.3* **hrs**	**~~16~~** *6* **hrs / 2.6 yrs**

TABLE D-14

Primer, Sealer, Undercoater - 100 g/l and less (~~29~~ *28* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Aquarius Coatings Armaglaze 6000	30	40-46	400	Excellent	Resistant to solvent, chemicals, abrasion, graffiti, etc	4 hrs.	3hrs / 1yr
Con-Lux Enviro-Plex Latex Primer/Sealer-10495	0	44-46	360-480	Good	Abrasive resistant; tough, scrubbable	2-18 hrs	n/a / 1yr
Coatings Resources Corp. CR-32 High Solids Waterborne Quick Cure Urethane	0	80	427	Outstand-ing adhesion	Very chemical resistant	2–48 hrs	2 hrs / 1 yr
Coatings Resources Corp. CR-42 Epoxy Primer/Sealer	0	100	535	Carbon steel or concrete/ masonry	Water, chemical resistant	2-72 hrs	45 mins / 1 yr
Coatings Resources Corp. CR-47 Waterborne Acrylic Primer	78	37	150	Steel, wood , fiberglass	Corrosion resistant	1 hr	n/a / 1 yr
Dunn Edwards M-P PRIME Acrylic Multi-purpose Primer W 713	85	38	400	Excellent	Adheres well	4 hrs	n/a / 1 yr
Dunn Edwards VINYLASTIC® Interior Pigmented Sealer W101	60	37	300-400	Excellent	Excellent enamel holdout	2-4 hrs	n/a / 1yr
Evans/ Gibson-Homans Primer 01018	90	43	600	Apply to clean, dry surface	Excellent water resistance	2 hrs	2 hrs / 1 yr
Evans/ Gibson-Homans 00233 HD Vinyl	1.08	49	240	Apply to clean, dry surface	Mildew resistance	2 hrs	n/a / 1yr
Evans/ Gibson-Homans 00234 HD Clear Wall Covering	10	39	240	Apply to clean, dry surface	Mildew resistance	2 hrs	n/a / 1yr
Flexbon Exterior 100% Acrylic Latex Primer	70	40.8	400	Good	Alkali resistant	18 hrs	n/a / 1 yr
Hart Polymers HP-200 (2-comp acrylic epoxy)	0	50	400	Pass*	Abrasion resistance 50 mg loss	3-5 hrs	2.5-3 hrs / 1 yr
ICI Dulux Interior Primer Finish 1472	77	35	200	Prime the surface	High build	4-8 hrs	n/a / 1 yr
ICI Dulux Pigmented Bonding Primer 3030-1200	108	36	350-450	Excellent adhesion	Alkali resistant	4 hrs	n/a / 1 yr

TABLE D-14 (CONTINUED)

Primer, Sealer, Undercoater - 100 g/l and less (~~29~~ *28* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Morton International MorKote™ 1300 sealer (Formula924-143A)	8.62	36	400-500	Good flow & leveling	Excellent block resistance	30 min	n/a / 6 months
Pittsburgh Paints 17-13 Exterior Hardboard Primer/Sealer	109	38.7 +/- 2	350-400	No special surface preparation	Blocking resistance	24 hrs	n/a / 5 yrs
Pittsburgh Paints Speedcraft 5-2 Interior Latex Primer-Sealer, White	83	24.6 +/- 2	350-450	Apply on primed surfaces	Not intended for high heat/ strong chemicals	4 hrs	n/a / 5 yrs
Pittsburgh Paints Speedhide 6-2 Quick-Drying Interior Latex Primer-Sealer	96	28.4 +/- 2	350-450	No special surface prep	Not resistant to high alkalinity	4 hrs	n/a / 5 yrs
Pittsburgh Paints Speedhide 6-609 Exterior Latex Wood Primer	89	39 +/- 2	400	No special surface preparation	Blister and mildew resistant	4-6 hrs	n/a / 5 yrs
Pittsburgh Paints Speedhide 6-712 Waterbase Inhibitive Metal Primer	94	41.9 +/- 2	300-350	Excellent; apply on clean, dry metal	Corrosion inhibitive properties	6-8 hrs	n/a / 5 yrs
Pittsburgh Paints WallCare 2-2 Interior Latex Primer-Sealer	83	24.6 +/- 2	350-450	Good	Need thinner to prevent corrosion	4 hrs	n/a / 5 yrs
Pittsburgh Paints Wallfresh 68-2 Interior Latex Primer-Sealer White	83	24.8 +/- 2	350-400	No special surface preparation	Not resistant to high heat/ strong chemicals	4 hrs	n/a / 5 yrs
Pittsburgh Paints Weatherfresh 73-1 Latex Wood Primer	89	39 +/- 2	400	Brush wood	Blister and mildew resistant	4-6 hrs	n/a / 5 yrs
~~Sherwin Williams Loxon Exterior Acrylic Masonry Primer (A24)~~	~~60~~	~~40~~	~~200~~	~~154 psi~~	~~Pass*~~	~~24 hrs~~	~~n/a / 1 yrs~~
Sherwin Williams Zinc Clad VI (B69)	48	45 +/- 2	241-361	480 psi	Impact resistance, 120 in. lbs.	3 hrs	8 hrs / 1 yr

TABLE D-14 (CONCLUDED)

Primer, Sealer, Undercoater - 100 g/l and less (~~29~~ *28* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Sherwin Williams UHS Primer	40	98 +-2%	400	800 psi	Abrasion resistance, 20.8 mg loss	8 hrs	45 min / 3 yrs
Sherwin Williams PrepRite 200	~~26~~ *86*	28 +/- 2	400	Profession al best line	Profession al best line	4 hrs	n/a / 1 yr
Sherwin Williams PrepRite 400	~~19~~ *61*	29 +/- 2	400	Good quality	Good quality	4 hrs	n/a / 1 yr
Sherwin Williams PrepRite ProBlock Interior Latex Primer/Sealer	~~40~~ *99*	36 +/- 2	400	Excellent	Fill surface irregular-ities	4 hrs	n/a / 1 yr

* Test method ASTM D2197

Average Summary of Samples	**~~53.7~~ *59.2***	**~~42.9~~ *43***	**~~372~~ *378***			**~~7.9~~ *7.3* hrs**	**2.4 hrs / 2.3 yrs**

TABLE D-15

Quick-Dry Primer, Sealer, Undercoater - from Exempt to 200 g/l (9 samples)

(Numerous coatings listed in Primer, Sealer, Undercoater meet the dry time and gloss requirements of a Quick-Dry PSU)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Drying time to touch	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Dunn Edwards High Build Industrial Epoxy Primer – IP714	340	59	250-300	Good; prime surface	30 mins	2-4 hrs	6-8 hrs / 1 yr
Dunn Edwards Corrosion Inhibitive Primer – IP507	420	50	350-400	Good; prime surface	30 mins	2-4 hrs	n/a / 1 yr
Dunn Edwards Block-it Quick Dry Primer/Sealer QD 42-56	450	42	400-425	Good; prime surface	15-30 mins	1 hr	n/a / 1 yr
Dunn Edwards Galv-Alum Quick Dry Primer QD 43-7	440	44	350-400	Prime the surface	30 mins	2 hrs	n/a / 1 yr
Pittsburgh Paints 97-608 Fast Dry Alkyd Inhibitive Industrial Primer	536	31.4 +/- 2	273-365	Apply to dry clean surface	15-30 mins	1 hr	n/a / 3 yrs
Pittsburgh Paints Rez 77-30 Interior Quick-Drying Sealer and Finish	560	26.6 +/- 2	500-700	No special surface prep.	30 mins	2-3 hrs	n/a / 3 yrs
Pittsburgh Paints Speedhide 6-10 Quick-Drying Interior Sanding Wood Sealer/Finish	560	27.3 +/- 2	500-700	Sand lightly	30 mins	2-3 hrs	n/a / 3 yrs
Pittsburgh Paints Speedhide 6-205 Quick-Drying Machinery and Equipment Primer	417	46.1 +/- 2	300-350	No special surface prep.	1 hr	2 hrs	n/a / 3 yrs
Zehrung Z-Prime	450	37.4	200-450	Excellent adhesion	30 mins	1 hr	n/a / 1 yr
Average Summary of Samples	**464**	**40.4**	**401**			**2 hrs**	**7 hrs / 1.9 yrs**

TABLE D-16

Quick-Dry Primer, Sealer, Undercoater - from 200 g/l to 100 g/l (6 samples)

(Numerous coatings listed in Primer, Sealer, Undercoater meet the dry time and gloss requirements of a Quick-Dry PSU)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Drying time to touch	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Dunn Edwards E-Z PRIME Exterior Acrylic Wood Primer W708	115	39	200-450	Good; prime surface	15 mins	2-3 hrs	n/a / 1 yr
Dunn Edwards UNIKOTE Interior Acrylic Enamel Undercoater W 707	130	43	400-450	Good: clean, dry surfaces	30 mins	2 hrs	n/a / 1 yr
Insl-X Aqualock Waterbase primer, sealer, stain killer (AQ 0500)	118	43	345	Excellent$^{\nabla}$	20-30 mins	1 hr	n/a / 1 yr
Insl-X Prep-a-Wall (WP3000)	115	42	225	Superior	15 mins	2 hr	n/a / 1 yr
Pittsburgh Paints 17-10 Quick-Drying Interior Latex Primer-Sealer	127	28.4 +/- 2	350-450	No special surface prepara-tion	Not for use as topcoat	4 hrs	n/a / 5 yrs
Zinsser Bull's Eye 1-2-3	141	75	400	No special surface prep.	30 mins	1 hr	n/a/ 6-8 yrs

∇ Test method ASTM D3359

Average Summary of Samples	**124**	**45.1**	**353**			**2.1 hrs**	**n/a / 2.7 yr**

TABLE D-17

Quick-Dry Primer, Sealer, Undercoater - 100 g/l and less (17 samples)

(Numerous coatings listed in Primer, Sealer, Undercoater meet the dry time and gloss requirements of a Quick-Dry PSU)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Drying time to touch	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Dunn Edwards Sierra Interior Sealer/Undercoater W500	0	38	300-400	Good; prime surface	30 mins	2 hrs	n/a / 1 yr
Dunn Edwards EFF-STOP® Acrylic Masonry Primer/Sealer W 709	105	34	200-400	Apply to clean, dry surfaces	30 mins	2-4 hrs	na / 1 yr
ICI Dulux Ultra-Hide Acrylic Primer 1020-1200	108	31 +/- 1	450	Excellent	30 mins	2 hrs	n/a / 1 yr
ICI Dulux Latex Wall Primer 1000-1200	103	29	300-400	Excellent	30 mins	2 hrs	n/a / 1 yr
ICI Dulux Acrylic Primer, Interior Wood Undercoater	108	31	450	Excellent	30 mins	2 hrs	n/a / 1 yr
ICI Dulux Ultrahide Primer, Sealer	96	41	400	Excellent	30 mins	2 hrs	n/a / 1 yr
ICI Dulux Ultrahide Vapor Barrier Latex Primer/Sealer	85	34	400	Excellent	30-60 mins	2 hrs	n/a / 1 yr
ICI Dulux Exterior Latex Primer	95	50	300-500	Excellent	30 mins	1 hr	n/a / 1 yr
ICI Dulux Ultrahide Stain Killer Primer/Sealer	95	50	300-450	Excellent	30 mins	1 hr	n/a / 1 yr
ICI Dulux Lifemaster 2000 Interior Primer/Sealer	0	32	400	Excellent	30-60 mins	2-3 hrs	n/a / 1 yr
ICI Dulux Dryfall Flat Primer and Finish	27	36	288-385	Excellent	15 mins	2 hrs	n/a / 1 yr
ICI Dulux Primer and finish 1482-1200	26	34	272-361	Excellent	15 mins	2 hrs	n/a / 1 yr
ICI Dulux Primer and finish 1486-1200	39	40	350-450	Excellent	15 mins	2 hrs	n/a / 1 yr
Morton International MorKote™ 1035 Primer (Formula 997-79)	94	38.7	207	Good	15 mins	2 hrs	n/a / 1 yr
Shieldz Universal Pre-wall covering primer	75	75	400	Good	15 mins	2 hrs	n/a / 1 yr
X-out Water-based primer/sealer stain killer	95	29	400	Clean surface	30 mins	1 hr	n/a / 1 yr
Zehrung Z-Prime II	0	45	250-450	Glossy surfaces	30 mins	1 hr	n/a / 1 yr
Average Summary of Samples	**67.7**	**39.3**	**370**			**1.8 hrs**	**n/a / 1 yr**

TABLE D-18

Water Proofing Sealers (Wood and Concrete) - from 400 g/l to 250 g/l (~~5~~ *6* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion / penetration into substrate	Durability Qualities	Resistance to H_20 /UV exposure	Pot Life @70 deg./ Shelf Life
Okon Water-based water proofing concrete sealers	400	10	100-350	Apply with brush, roller or spray.	Excellent resistance to abrasion	Excellent resistance to UV	n/a / 1 yr
Sherwin Williams Cuprinol Clear Deck	*282*	*6.4 +/- 2*	*200-300*	*Pressure treated*	*Water repellent*	*Water repellant*	*n/a / 1 yr*
Tex-Cote Rainstopper Series 100	400	8	50-125	Apply to clean surface	Water resistant 2500 hrs exposure.	Excellent after 250 hrs of UV	n/a / 1 yr
Tex-Cote Rainstopper Series 200	400	20	100-125	Apply to clean surface	Water resistant 2500 hrs exposure.	Excellent after 250 hrs of UV	n/a / 1 yr
Tex-Cote Rainstopper Series 400, 500	400	25	100-200	Apply to clean surface	Water resistant 2500 hrs exposure.	Excellent after 250 hrs of UV	n/a / 1 yr
Thompson's Water Seal Waterproofing Formula#171	400	10.3	50-400	Dry, clean surface	Excellent resistant to abrasion	Excellent water repellency	n/a / 1 yr
Average Summary of Samples	**~~400~~ *380***	**~~14.7~~ *13.3***	**~~160~~ *175***				**n/a / 1 yr**

TABLE D-19

Water Proofing Sealers (Wood and Concrete) - 250 g/l and less (~~10~~ *9* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion / penetration into substrate	Durability Qualities	Resistance to H_20 /UV exposure	Pot Life @70 deg./ Shelf Life
Hart Polymers HP-110 (2-comp aliphatic epoxy)	0	45	250-350	Excellent adhesion	Tensile strength 1100 psi	Excellent UV resistance	4 hrs / 1 yr
Hart Polymers HP-110 (2-comp aliphatic epoxy)	0	45	250-350	Excellent adhesion	Tensile strength 1100 psi	Excellent UV resistance	4 hrs / 1 yr
Hart Polymers HP-150 (2 comp aliphatic epoxy elastomeric)	0	52	250-350	Excellent adhesion	Tensile strength 2000 psi	Excellent UV resistance	1.5-2 hrs / 1 yr
Hart Polymers HP-340 (single comp aliphatic polyurethane elastomeric – heavy applications - roofs)	0	58-61	33	Excellent adhesion	Tensile strength 1500 psi	20 in./lbs. impact resistance	n/a / 1 yr
Hart Polymers HP-350 (2-comp acrylic epoxy)	0	61	250-350	Pass *	Tensile strength 5000 psi	50 in./lbs impact resistance	1.5-2 hrs / 1 yr
Pittsburgh Paints Aquapon WB 98-Line Waterborne Epoxy High Performance	230	38 +/- 2	203	Apply to dry, clean primed surface	Impact, abrasion resistant	Stain resistance	6 hrs / 5 yrs
Pittsburgh Paints Coal Cat 97-640, 641 Coal Tar Epoxy Coating	233	72.3 +/- 2	165-192	Apply to dry, clean primed surface	Very good / excellent chemical resistance	Fresh and salt water resistant	8-10 hrs / 8 months
Pittsburgh Paints Coal Cat 97-641 Coal Tar Epoxy Coating	241	72.3 +/- 2	165-192	Apply to dry, clean primed surface	Very good / excellent chemical resistance	Fresh and salt water resistant	8-10 hrs / 8 months
Seal Krete® Waterproofing Sealer	<8	10	80-300	Excellent	High	--	1-2 hrs /2 years
~~Sherwin Williams Cuprinol Clear Deck~~	~~27~~	~~6.4 +/- 2~~	~~200-300~~	~~Pressure treated~~	~~Water repellent~~	~~Water repellant~~	~~n/a / 1 yr~~

* Test method ASTM D2197

Average Summary of Samples	**~~73.9~~ *79.1***	**~~46.3~~ *50.7***	**~~224~~ *221***				**4.7 hrs / 1.4 yrs**

TABLE D-20

Stains - from 350 g/l to 250 g/l (3 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion / penetration into substrate	Resistance to UV exposure	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Cabot Stains Problem-Solver Primer	350	55.1	150-250	Good	Superior durability	24 hrs	n/a 10 yrs
Pittsburgh Paints 77-315,77-317 Exterior Solid Color Stains	350	55.9 +/- 2	300-600	Excellent water repellant	Good for long term exposures	24 hrs	n/a / 3 yrs
Pittsburgh Paints 77-360 Exterior Semi-Transparent Stain-Oil	350	55.2 +/- 2	300-600	Excellent water repellant	Good for long term exposures	24 hrs	n/a / 3 yrs
Average Summary of Samples	**350**	**55.6**	**367**			**24**	**n/a / 5.3 yrs**

TABLE D-21

Stains - 250 g/l and less (10 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion / penetration into substrate	Resistance to UV exposure	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Benjamin Moore Acrylic Exterior Stain 179	250	30	300-450	Excellent hiding, adhesion	Mildew, fading, blistering resistant	1 hr	n/a / 5 yrs
Cabot Decking Stains with Teflon Surface Protector #1700 Series	250	32.9	250-450	Excellent	Mildew, oil, dirt resistant	6 hrs	n/a / 5 yrs
Okon Deck Stain	171	15	100-250	Varies w/ substrate	1000 hrs	8-24 hrs	Indefinite
Okon Natural Choice	220	15	50-200	Varies w/ substrate	1000 hrs	8-24 hrs	Indefinite
Pittsburgh Paints Rez 77-410 Solid Color Acrylic Latex Stains Exterior/Interior	132	24 +/- 2	150-300	Must back-roll for max penetration	Effects vary with different wood	2-4 hrs	n/a / 5 yrs
Pittsburgh Paints Rez 77-460 Exterior Semi-Transparent Latex Stain	174	18.3 +/- 2	200-500	Must back-roll for max penetration	Excellent color retention; mildew/ crack resist.	2-4 hrs	n/a / 5 yrs
Pittsburgh Paints Speedhide 6-7415 Professional Exterior Solid Color Latex Stains	138	23.3 +/- 2	200-400	Must back-roll for max penetration	Different wood affects color	2-4 hrs	n/a / 5 yrs
Pittsburgh Paints Speedhide 6-7417 Professional Exterior Solid Color Latex Stains	154	23.3 +/- 2	200-400	Must back-roll for max penetration	Different wood affects color	2-4 hrs	n/a / 5 yrs
Rhinoguard Deck and Siding Finish	0	30	550	Excellent	Excellent UV resistance	2-4 hrs	n/a / 5 yrs
Vianova RESYDROL® (AY586)	0	45	241	Good	Will not crack, peel or chip	8 hrs	n/a / 5 yrs
Average Summary of Samples	**148.9**	**25.7**	**299**			**6.2 hrs**	**n/a / 5 yrs**

TABLE D-22

Rust Preventative Coatings - from 350 g/l to 100 g/l (6 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Pot Life @70 deg./ Shelf Life
Dunn Edwards BLOC-RUST® Red Oxide Alkyd Corrosion Inhibitive Primer 43-4	300	64	500-550	Prime surface	Corrosion resistant	n/a/ 1 yr
Dunn Edwards Corrobar White Alkyd Corrosion Inhibitive Primer 43-5	345	56	500-550	Good; clean dry surfaces	Corrosion resistant	n/a / 1 yr
Pittsburgh Paints Pitt-Guard 97-144 Direct-to-Rust Coating (2 comp)	198	84.9 +/- 2	195-274	Prime the surface	Immersion service	4 hrs / 5 yrs
Pittsburgh Paints Speedhide 6-20 Exterior Wood Finish	350	57.1 +/- 2	400	Apply in dry weather	Not resistant to high heat/ chemical	n/a / 3 yrs
Pittsburgh Paints Speedhide 6-208 Rust Inhibitive Steel Primer	349	52.2 +/- 2	390-535	No special surface preparation	Rust inhibitive properties	n/a / 3 yrs
Pittsburgh Paints Speedhide 6-212 Rust Inhibitive Steel Primer	338	52.2 +/- 2	390-535	No special surface preparation	Rust inhibitive properties	n/a / 3 yrs
Average Summary of Samples	**313**	**61.1**	**435**			**4 hrs / 2.7 yrs**

TABLE D-23

Rust Preventative Coatings - 100 g/l and less (4 samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Pot Life @70 deg./ Shelf Life
Hart Polymers HP-110 (2-comp aliphatic epoxy)	0	45	250-350	Excellent	Excellent UV resistance	4 hrs / 1 yr
Hart Polymers HP-150 (2 comp aliphatic epoxy elastomeric)	0	52	250-350	Excellent	Excellent UV resistance	1.5-2 hrs / 1 yr
Hart Polymers HP-350 (2-comp acrylic epoxy)	0	61	250-350	Pass*	50 in./lbs. impact resistance	1.5-2 hrs /1 yr
Pittsburgh Paints Speedhide 6-712 Waterbase Inhibitive Metal Primer	94	41.9 +/- 2	300-350	Excellent; apply on clean, dry metal	Corrosion inhibitive properties	n/a / 5 yrs

* ASTM D2197 test method

Average Summary of Samples	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Pot Life @70 deg./ Shelf Life
Average Summary of Samples	**23.5**	**50.0**	**306**			**2.5 hrs / 2 yr**

2002 RESEARCH DATA: The following tables outline additional coatings currently available.

TABLE D-24

Floor Coatings – 100g/L –50g/L (8 samples)

Coating Company, Product Name, Components	*VOC content (gm/l)*	*Solids (% by volume)*	*Coverage (sq ft/gal) @3mils*	*Physical Properties*	*Durability Qualities*	*Gloss Character -istics*	*Pot Life @70 deg./ Shelf Life*
Color Wheel 380 Acrylic Floor & Deck Paint, Satin,1	*56*	*37.2 ±2*	*200*	*Abrasion, blistering, cracking, chipping and pealing resistant*	*Excellent color retention and chalk resistance*	*60° 20-30 Satin gloss*	*N/A*
Color Wheel 3900 Ultra Tex-Trac Concrete Coating, Flat,1	*91*	*48.9 ±2*	*275*	*Abrasion, blistering, cracking, chipping and pealing resistant*	*Excellent color and gloss retention*	*85° 1-5 Flat*	*N/A*
Insl-X, Sure-Step Anti-Slip Coating SU-series	*97*	*41*	*219*	*Skid resistant for interior or exterior concrete or asphalt*	*Abrasions resistant, color retention*	*Flat*	*N/A/1 year*
JFB Hart Coatings, HP-100 polyurethane, 3	*67*	*41*	*217*	*Adhesion 5B Abrasion 725 cycles*	*Chemical, acid, abrasion and mar resistant*	*Up to 95° @60°*	*90min/1 year*
JFB Hart Coatings, HP-146 polyurethane, 1	*100*	*30*	*160*	*Adhesion 5B*	*Chemical and abrasion resistant*	*80° ± 5 @60°*	*Indefinite*
Thoro, Thorosheen w/b acrylic paint Int/Ext,1	*81*	*38*	*203*	*Passed ¼" flexibility test*	*Mildew and UV resistant*	*Semi-gloss*	*N/A/1 year*
Thoro, Thorocoat F-74 w/b acrylic coating,1	*56*	*50 ±1*	*267*	*Skid resistant for floors walkways, stairways*	*UV resistant*	*N/A*	*N/A*
Cloverdale Paint Step-Safe Non-Slip Coating	*89*	*51*	*272*	*Skid resistant for wood asphalt and concrete*	*Tough and durable non-slip*	*N/A*	*N/A*
Average Summary of Samples	***79.6***	***42.1***	***226.6***				***90 min/ Indefinite***

N/A= NOT AVAILABLE

Floor Coatings - 50 g/l or less (~~6~~ *11* samples)

Coating Company and Product Name, components (if available)	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	~~Adhesion Qualities~~ *Physical Properties*	Durability Qualities	Gloss Charac ter-istics	Pot Life @70 deg./ Shelf Life
~~Andek PolaJoint, 2 part~~	~~0~~	~~100~~	~~120ft/12lbs~~	~~Greater than concrete~~	~~Shore 'A' Hardness 95~~	~~Satin~~	~~30min/ 1 year~~
Andek PolaFloor P.U.R., 3 part	0	100	50ft/20lbs.	~~Greater than concrete~~ *Tensile Strength 2685 psi*	Impact resistant	Satin	40min/1 year
Andek Polafloor Epoxy Topping, 2	0	100	30	~~Greater than concrete~~ Tensile Strength 1750 psi	Impact resistant	Satin	20min/1 year
Benjamin Moore M40 Epoxy floor coating, 1	0	100	200	*Adhesion* 480psi, *Tensile Strength 850 psi, Taber .06g*	Abrasion resistant, non – flammable	95%at 60deg.	30min/ N/A
Benjamin Moore M41 Fast Dry Epoxy floor sealer, 1	0	51	325	~~600psi~~ *Tensile Strength 8800 psi Taber .05g*	Impact resistant	50% @ 60deg.	20min./ N/A
Curecrete Ashford Formula*, 1*	0	N/A	200	N/A	32.5% improvement in 30 min	Wax like sheen	Indefinite
JFB Hart Coatings, HP-105 Clear polyurethane, 2	*0*	*53*	*283*	*Adhesion 5B Abrasion 1430 cycles*	*High gloss UV and chemical resistant*	*Up to 95° @60°*	*90min/1 year*
JFB Hart Coatings, HP-105 Pigmented polyurethane, 2	*10*	*63*	*337*	*Adhesion 5B Tensile 2609 psi*	*High gloss UV and chemical resistant*	*Up to 95° @60°*	*120min/1 year*
JFB Hart Coatings, HP-147 polyurethane, 1	*0*	*N/A*	*N/A*	*Tensile Strength 4000 psi, pH=8.2-9.2*	*UV resistant*	*80° ± 5 @60°*	*N/A*
JFB Hart Coatings, HP-330 polyurethane, 2	*11*	*90*	*480*	*N/A*	*High gloss, acid and chemical resistant*	*Up to 85° @60°*	*60min/ N/A*

Floor Coatings - 50 g/l or less (~~6~~ *11* samples) - concluded

Coating Company and Product Name, components (if available)	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	~~Adhesion Qualities~~ *Physical Properties*	Durability Qualities	Gloss Characteristics	Pot Life @70 deg./ Shelf Life
Color Wheel *381 Latex Floor Paint, Flat,1*	*29*	*38.8 ±2*	*200*	*Non-skid finish and blistering, cracking, chipping and pealing resistant*	*Excellent color retention and chalk resistance*	*85° 5-15* *Flat finish*	*N/A*
Insl-X, *100% Solids Epoxy Coating,2*	*0*	*100*	*533*	*Self leveling epoxy for severe environments*	*Abrasions and chemical resistant*	*High Gloss*	*45min/1 year*

* Test method ASTM D2197
* * Test method ASTM D4541-85

Average Summary of Samples	**~~0~~** ***4.5***	**~~90.2~~** ***77.3***	**~~188~~** ***288***				**~~28~~** ***54*** **mins./ 1 yr.**

N/A= NOT AVAILABLE

TABLE D-25

Industrial Maintenance Coatings - from 250 g/l to 100 g/l (~~14~~ *18* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	~~Adhesion Qualities~~ *Substrate/ exposure*	Durability Qualities	Gloss Charact er-istics	Pot Life @70 deg./ Shelf Life
~~AirProducts Anquamine 701~~	~~0~~	~~55~~	~~300~~	~~N/A~~	~~N/A~~	~~N/A~~	~~N/A~~
~~EnviroSil 5770~~	~~.25~~	~~70~~	~~336~~	~~Good~~	~~Weather resistant~~	~~N/A~~	~~N/A/6 months~~
~~GacoFlex LM-60~~	~~0~~	~~100~~	~~533~~	~~Concrete, metal, plywood~~	~~Salt/alkali resistant~~	~~N/A~~	~~60 min/ 1 year~~
~~GacoFlex U-62~~	~~0~~	~~100~~	~~1600(39.3m²/L/.025mm)~~	~~Plywood, metal 20Lbs/ inch~~	~~Solvent resistant~~	~~N/A~~	~~20min/ 1 year~~
~~GacoSil S-50~~	~~0~~	~~18~~	~~287~~	~~good~~	~~Weather proof~~	~~N/A~~	~~N/A/1 year~~
~~Pacific Polymers Elasto-tex wallcoating, 1~~	~~<125~~	~~52~~	~~300~~	~~Concrete/masonry~~	~~UV and weather resistant~~	~~N/A~~	~~<1 hr/ N/A~~
Color Wheel, *Aquatec Acrylic Enamel 1600, 1*	*120*	*42.5± 2*	*226*	*Structural Steel, Aluminum, wood, brick*	*Excellent*	*S/g 60° gloss: 50-70*	*N/A*

TABLE D-25 (CONTINUED)

Industrial Maintenance Coatings - from 250 g/l to 100 g/l (~~14~~ *18* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	~~Adhesion Qualities~~ *Substrate/ exposure*	Durability Qualities	Gloss Charact er-istics	Pot Life @70 deg./ Shelf Life
Color Wheel, Aquatex Acrylic Enamel 1650, 1	*123.4*	*39.8*	*213.3*	*Architectural/ Industrial/ commercial*	*Excellent*	*60° 15-35 Satin gloss*	*N/A*
Insl-X, Aqualock w/b primer, sealer, stain killer 0500	*118*	*43*	*230*	*Industrial applications over painted surfaces, top or mid coat*	*Cross Hatch adhesion- 5*	*Eggshell, low sheen*	*N/A/1 year*
Insl-X, Insl-Thane II enamel 7500, 1	*174*	*41*	*219*	*Light industrial uses*	*Cross Hatch Adhesion-5*	*80@ 60°, 45@60°*	*N/A/1 year*
ICI Devflex 4206 Waterborne Acrylic Semi-Gloss Enamel Int./Ext.	*218*	*42*	*336-448*	*Structural steel, storage tanks, wood or metal trip*	*Taber 260mg*	*50 units @ 60°*	*N/A/1 year*
Du Pont, Tufcote 72P W/B DTM Acrylic Enamel	*228*	*35.5*	*190*	*Steel, Galvanized metal, Aluminum, concrete*	*Excellent color/gloss retention*	*70 ± 5 @60°*	*N/A/2 years*
Du Pont, Corlar VHS 90P epoxy mastic, 2	*101*	*90*	*480*	*Bridges, Structural steel, corrosive enviro.*	*.17g loss/1000 cycle scrub*	*N/A*	*90min./1 year*
Sherwin Williams EPO-PLEX MULT-MIL W/B Epoxy,2	*240*	*42*	*224*	*Primed steel and masonry surfaces, concrete, plaster, wallboard and wood*	*141mg loss/1000 cycles 1 kg load*		*8 hrs./1 year*
Sherwin Williams Zinc Clad VI W/B Organic Zinc Rich Epoxy	*163*	*42.5± 2*	*241*	*Blasted steel on barges, ships, fabrication shops, chemical plants, drilling rigs*	*Cathodic protection, corrosion resistance*	*N/A*	*8 hrs./1 year*

TABLE D-25 (CONCLUDED)

Industrial Maintenance Coatings - from 250 g/l to 100 g/l (~~14~~ *18* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	~~Adhesion Qualities~~ *Substrate/ exposure*	Durability Qualities	Gloss Charact er-istics	Pot Life @70 deg./ Shelf Life
International Protective Coatings *Interfine 979 Polysiloxane,2*	*165*	*76*	*405*	*Bridges, offshore structures, tank farms and general industrial / commercial steelwork*	*Excellent color, gloss retention and corrosion resistance*	*Gloss*	*2 hrs./N/A*
Wasser MC-Zinc 200, *liner* 1	<200	73+*/-3.0*	390	Marine structures	Cold, damp resistant	N/A	N/A /1 year
Wasser MC-Aluminum 200, *Topcoat* 1	<200	73+*/-3.0*	390	Steel	Corrosion resistant	matte	N/A/ 1 year
Wasser MC-Ferrox A 200, *Topcoat* 1	<200	71+*/-3.0*	379	Metal	Weather resistant	Low gloss/ matte	N/A/1 year
Wasser MC-luster 200, *Mid or Topcoat* 1	<200	71+*/-3.0*	379	~~Superior~~ *Steel*	Abrasion, UV resistant	20deg – 60deg	N/A/1 year
Wasser MC-Miomastic 200, *Topcoat* 1	<200	73+*/-3.0*	390	Overcoat	Offshore harsh environme nts	Matte	N/A/1 year
Wasser MC-Miozinc 200, *Zinc Primer* 1	<200	73+*/-3.0*	390	Steel	Rust preventativ e	Flat	N/A/1 year
Wasser MC-prebond 200, *primer* 1	<200	73+*/-3.0*	390	Steel	Rust proof	Matte	N/A/1 year
Wasser MC-Shieldcoat 200, *Topcoat* 1	<200	71+*/-3.0*	379	Concrete and wood	Color retention	60-90 as required	N/A/1 year
Average Summary of Samples	**~~123~~ *180.6***	**~~66.1~~ *59.6***	**~~346~~ *328***				**~~53 min~~ *4.8 hrs*/ ~~11.5 months~~ *1 yr***

N/A= NOT AVAILABLE

TABLE D-26

Industrial Maintenance Coatings - 100 g/l or less (~~49~~ *54* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	~~Adhesion Qualities~~ *Substrate/exposure*	Durability Qualities	Gloss Character-istics	Pot Life @70 deg./ Shelf Life
AirProducts Anquamine 701 epoxy, 1	*0*	*70.6*	*300*	*concrete*	*156 mg loss/1000 cycles*	*N/A*	*N/A*
Everest, EnviroSil 570 silicone elastomeric coating, 2	*.25*	*63 +/- 2*	*336*	*protection for roof systems*	*Weather resistant*	*N/A*	*N/A / 6 months*
GacoFlex LM-60 urethane, 2	*0*	*100*	*533*	*Concrete, metal, plywood*	*Salt/alkali resistant*	*N/A*	*60 mins. / 1 year*
GacoFlex U-62 urethane base and topcoat, 2	*0*	*100*	*533*	*Plywood, metal 20Lbs/ inch*	*Solvent resistant*	*N/A*	*20 mins./ 1 year*
GacoSil S-50 silicone, 1	*0*	*18±1*	*287*	*Desks, metal*	*Weather proof*	*N/A*	*N/A / 1 year*
Carboline, *Carbozinc 11 WB, 2*	*0*	*79 ±1*	*533*	*Weldable pre-construction primer or primer under various topcoats*	*Excellent corrosion protection and good resistance to salting*	*N/A*	*N/A ./1 year*
Carboline POLIBIRD 705 *Polyurethane, 2*	0	100	534	Concrete, steel	Abrasion. Erosion resistant	Glossy	5-8 mins. / 1 year
Carboline POLIBIRD 706 *Polyurethane, 2*	0	100	534	Geotextile	UV resistant	N/A	7-10 mins. / 1 year
Carboline POLIBIRD 607S *epoxy primer, 2*	3.3	99 minimum	533	Carbon steel or concrete	Moisture tolerant	N/A	1 hr./ 1 year
Color Wheel, *Aquatex Acrylic Primer 1635*	*87*	*43.6± 2*	*233*	*Metals, plastics, decking*	*Corrosion resistant*	*Primer*	*N/A*
Duromar HPL-1110 *tank lining, 2*	0	100	~~500 @40 mils~~ *533*	~~Great~~ *Oil & other storage tanks*	Chemical resistant	~~N/A~~ *Flexible, low viscosity*	45 mins/ N/A
Duromar HPL-1111 *tank lining, 2*	0	100	~~500 @40 mils~~ *533*	~~Great~~ *Dirty water systems*	Non-corrosive	~~N/A~~ *Low viscosity*	45 mins/ N/A
Duromar HPL-1301 *concrete sealer, 2*	0	100	~~500 @40 mils~~ *533*	~~Great~~ *Clear topcoat; floors*	Moisture tolerant *pH 3.0-12*	N/A	60 mins/ N/A

TABLE D-26 (CONTINUED)

Industrial Maintenance Coatings - 100 g/l or less (~~49~~ *54* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	~~Adhesion Qualities~~ *Substrate/exposure*	Durability Qualities	Gloss Characteristics	Pot Life @70 deg./ Shelf Life
Duromar HPL-1510, *steel primer, 2*	0	100	~~500 @40 mils~~ *533*	~~Great~~ *allows long overcoat*	Alkaline resistant *pH 2.5-14*	N/A	45 mins/ N/A
Duromar HPL-2110 *epoxy, 2*	0	100	~~500 @40 mils~~ *533*	~~Great~~ *Replaces conventional coal tar epoxies*	Alkaline and hydrocarbon resistant	N/A	30 mins/ N/A
Duromar HPL-2131 *anti-corrosive, 2*	0	100	~~500 @40 mils~~ *533*	~~Great~~ *Tanks*	Alkaline and hydrocarbon resistant	~~N/A~~ *Trowel-able*	46 mins/ N/A
Duromar HPL-2201*, 2*	0	100	~~500 @40 mils~~ *533*	~~Great~~ *Vessels, baghouse, EP walls, coal bunkers, floors*	Alkaline and hydrocarbon resistant	~~N/A~~ *Low temp., fast cure, low viscosity*	20 min/ N/A
Duromar HPL-2221 *tank lining, 2*	0	100	~~500 @40 mils~~ *533*	~~Great~~ *Rail cars, Ash hoppers, slurry tanks, floors*	Alkaline and hydrocarbon resistant	~~N/A~~ *Good flexibility*	45min/ N/A
Duromar HPL-2310*, 2*	0	100	~~500 @40 mils~~ *533*	~~Great~~ *N/A*	Alkaline and hydrocarbon resistant	~~N/A~~ *Ambient cure*	45min/ N/A
Duromar HPL-2510*, 2*	0	100	~~500 @40 mils~~ *533*	~~Great~~ *Circulating water pipes, sewage treatment, water tanks*	Alkaline and hydrocarbon resistant	N/A	45min/ N/A
Duromar HPL2510-UW*, 2*	0	100	~~500 @40 mils~~ *533*	~~Great~~ *Dams, concrete, tanks*	Alkaline resistant	~~N/A~~ *Moisture tolerant*	40min/ N/A
Duromar HPL-3320 *epoxy, 2*	0	100	~~500 @40 mils~~ *533*	~~Great~~ *Secondary containment, floors*	Alkaline and hydrocarbon resistant	N/A	30min/ N/A
Duromar HPL-4300*, 2*	0	100	~~500 @40 mils~~ *533*	~~Great~~ *Boiler skirts, incinerator outlets*	Abrasion resistance	N/A	30min/ N/A

TABLE D-26 (CONTINUED)

Industrial Maintenance Coatings - 100 g/l or less (~~49~~ *54* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	~~Adhesion Qualities~~ *Substrate/exposure*	Durability Qualities	Gloss Characteristics	Pot Life @70 deg./ Shelf Life
Duromar HPL-4310 *Novolac, 2*	0	100	~~500 @40 mils~~ *533*	~~Great~~ *Petro. & chem. storage tanks, utility, FGD systems*	Alkaline and hydrocarbon resistant	N/A	45min/ N/A
Duromar HPL-4320*, 2*	0	100	~~500 @40 mils~~ *533*	Great *for concrete, sulfuric acid*	Alkaline, acid, carbon resistant	N/A	20min/ N/A
Duromar HPL-4321*, 2*	0	100	~~500 @40 mils~~ *533*	Great *for methylene chloride & other chemicals*	Chemical resistant	N/A	25min/ N/A
Duromar HPL-5220 *polyurea, 2*	0	100	500	~~*Great*~~ *Secondary contain-ment, conveyor belt coatings*	Alkaline res.	N/A	45min/ N/A
Enviroline 150 *epoxy, 2*	0	100	534	Steel, concrete	Abrasion/ impact resistant	N/A	5min @100deg/2 years
Enviroline 222 *epoxy, 2*	0	100	534	Sub-grade concrete	Moisture tolerant	N/A	10min@ 100deg/2 years
Enviroline 224 *epoxy, 2*	0	100	534	~~*Good*~~ *Waste water treatment application*	Resistance to chemical attack moisture salt	N/A	21min/2 years
Enviroline 225 *epoxy, 2*	0	100	534	~~*Excellent*~~ *tanks, Waste water treatment plants, steel & concrete, floors*	Acid resistant	N/A	10min@ 100deg/2 years
Enviroline 232 *epoxy lining, 2*	0	100	534	~~*Excellent*~~ *Wastewater treatment basins, Steel, concrete,*	Abrasion, impact resistant	N/A	7min@ 100deg/2 years

				storage tanks.			

TABLE D-26 (CONTINUED)

Industrial Maintenance Coatings - 100 g/l or less (~~49~~ *54* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	~~Adhesion Qualities~~ *Substrate/exposure*	Durability Qualities	Gloss Characteristics	Pot Life @70 deg./ Shelf Life
Enviroline 240CW *epoxy, 2*	0	100	534	Concrete/ steel	Thermal and mechanical shock resistant	N/A	13min @100deg/2 years
~~Enviroline 339ABR~~	~~0~~	~~100~~	~~534~~	~~Excellent~~	~~Abrasion resistant~~	~~N/A~~	~~15min @100deg/2 years~~
Enviroline 250 *epoxy, 2*	0.42	100	534	~~Excellent~~ *Concrete/ steel*	Abrasion/ impact resistant	N/A	13min @100F/2 years
Enviroline 333 *epoxy aquatic environments, 2*	0	100	534	Concrete	Moisture tolerant	N/A	26min/2 years
Enviroline *333Br epoxy aquatic environments, 2*	0	100	534	Concrete	Chemical tolerant	N/A	26min/2 years
Enviroline 376F-30 *epoxy petroleum industry, 2*	0	100	534	~~Excellent~~ *Petrol. Bulk storage tank linings, floors, tanks pools, troughs, sumps*	Abrasion resistance	N/A	30min/2 years
Enviroline 376F-*60 epoxy glass flakelining for petroleum applications, 2*	0	100	534	~~Excellent~~ *Steel, concrete, bulk storage tanks, pipes, pits*	Abrasion Heat resistant	N/A	30min/2 years
Enviroline 393-PM *epoxy, 2*	0	100	534	Excellent for steel, concrete	Corrosion/ stain resistant	Excellent gloss	15min/2 years
~~Enviroline 399-30~~	~~0~~	~~100~~	~~534~~	~~Excellent~~	~~Chemical/ solvent resistant~~	~~N/A~~	~~30min/2 years~~
~~Enviroline 338-60~~	~~0~~	~~100~~	~~534~~	~~Excellent~~	~~Abrasion resistant~~	~~N/A~~	~~30min/2 years~~
Enviroline 124 (three cure rates available)	0	100	534	Pits and pinholes in steel	Chemical resistance	N/A	8-12min/ 2 years
~~Enviroline 376-30~~	~~0~~	~~100~~	~~534~~	~~Excellent~~	~~Solvent/chemical resistant~~	~~N/A~~	~~30min/2 years~~
~~Enviroline 376F-60~~	~~0~~	~~100~~	~~534~~	~~Excellent~~	~~Impact resistant~~	~~N/A~~	~~30min/2 years~~

TABLE D-26 (CONTINUED)

Industrial Maintenance Coatings - 100 g/l or less (~~49~~ *54* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	~~Adhesion Qualities~~ *Substrate/exposure*	Durability Qualities	Gloss Characteristics	Pot Life @70 deg./ Shelf Life
Enviroline 394FS *epoxy, 1*	0	100	534	Excellent steel, concrete	Corrosion, abrasion resistant	N/A	16min/2 years
Enviroline 399-30 *petroleum industry, 2*	0	100	534	~~Excellent~~ *Steel & concrete storage tanks, pipes, sumps*	Cathodic disbondment resistant	N/A	30min/2 years
Enviroline 399-60 *epoxy petroleum industry, 2*	0	100	534	~~Excellent~~ *Reinforced coating for steel & concrete*	Chemical and solvent resistant	N/A	30min/2 years
Enviroline 399ABR *epoxy, 1*	0	100	534	~~Superior~~ *Potash mines, ext. pipelines, slurry tanks*	Corrosion resistant	N/A	15min @100F/ N/A
Enviroline 370 *FDA Approval interior/exterior, 2*	0	100	534	Metal	Reverse impact resistant	High gloss	30min/2 years
Enviroline *50 epoxy primer, 2*	0	100	534	Cement	Moisture tolerant	N/A	15-20min /2 years
Pacific Polymers Res-Crete *epoxy, protective coating or lining*	0	100	50	Floors/ decks	Strong	N/A	35min
Sherwin Williams *Zinc Clad XI W/B Inorganic Zinc Silicate*	*0*	*68 ± 2*	*363*	*Blasted steel as a primer for severely corrosive environments*	*pH range 5-9* *Abrasion and corrosion resistant*	*N/A*	*4 hrs./1 year*
Sierra Performance Coatings, *Concrete Enamel Gloss-S40*	*0*	*45*	*250*	*Concrete floors, walls and garage floors*	*<.2g loss/1000 cycles, chemical/stain resistant*	*Gloss*	*4 hrs./>1 year*
Superior Environmental Products SC-1100 *epoxy novolac primer, 2*	0	100	533	Concrete	Chemical/ heat resistant	N/A	*N/A* ~~2.5hrs~~

TABLE D-26 (CONCLUDED)

Industrial Maintenance Coatings - 100 g/l or less (~~49~~ *54* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	~~Adhesion Qualities~~ *Substrate/exposure*	Durability Qualities	Gloss Characteristics	Pot Life @70 deg./ Shelf Life
Wasser, MC-CR 100 *urethane, moisture cure*, 1	<100	73±2	390	~~Not good over old paint~~ *Overcoat primer for old lead paint, spot prime steel*	Resistance to aging and cracking	Matte	N/A 12months
Wasser MC-Miozinc 100, 1 *urethane*	<100	73±2	390	Tanks, chemical, marine	Rust and corrosion resistant	N/A	N/A/12 months
Wasser MC-Luster 100, ~~2~~ *urethane, 1*	<100	70±2	366	Can be applied at 99% humidity	UV and abrasion resistant	Semi-gloss	N/A /12months
ZRC *ZRC zero VOC, galvanizing compound metallic zinc coating, 2*	*0*	*43.5*	*232*	*Apply to carbon steel, cast iron, hot-dip galvanized, aluminum*	*Pencil Hardness 4B, anti-corrosion protection*	*Flat*	*N/A /1 year*

z ASTM D2197 Test Method
*ASTM D4541 Test Method
∇ ASTM D4145-90 Test Method.
' ASTM D3359-78 Test Method

Average Summary of Samples	VOC	Solids	Coverage				Pot Life/Shelf Life
Average Summary of Samples	**~~0~~ *7.2***	**~~98.2~~ *91.6***	**~~480~~ *483***				**~~33.7~~ *31* min./ ~~1.79~~ *1.6* years**

N/A= NOT AVAILABLE

TABLE D-27

Nonflats (High Gloss) - from 250 g/l to 150 g/l (~~1~~*3* sample)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Frazee 143 Glide Gloss i/e	228	36.9	200-300	~~Pencil hardness H~~ *N/A*	16 hrs.	N/A/ 2 years
ICI Devoe, Devflex 4208QD, Int./ext. topcoat	*205*	*41± 1*	*219*	*260mg loss/ 1000 cycles*	*2 hrs.*	*N/A/1 year*
Kwal-Howells, 8400 Acrylic Enamel, In/ext. topcoat	*211*	*34*	*300-400*	*N/A*	*6 hrs.*	*N/A*
Average Summary of Samples	**~~228~~ *215***	**~~36.9~~ *37.3***	**~~200-300~~ *273***		**~~16~~ *8* hrs**	**N/A/~~2~~ *1.5* years**

Nonflats (Semi-Gloss)- From 250 g/l to 150 g/l (~~3~~ *6* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70deg./ Shelf Life
BenjaminMoore Moorecraft Super Spec 170 ext.	<250	33	400-475	N/A	4 hrs.	N/A
BenjaminMoore MoorGlo 096 House paint	191	41	400-450	N/A	4 hrs.	N/A
~~Coronado Super Kote 5000 ext.~~	~~<240~~	~~29.5~~	~~400~~	~~Weather resistant~~	~~4 hrs.~~	~~N/A~~
Color Wheel, Tropicoat s/g House Paint 320, Ext.	*153*	*32.7*	*300-500*	*N/A*	*8 hrs.*	*N/A*
Color Wheel, Optima Acrylic 350, Exterior	*172*	*40.9*	*300-500*	*N/A*	*8 hrs.*	*N/A*
Color Wheel, Optima s/g enamel 360, Interior	*203*	*35*	*300-500*	*N/A*	*8hrs.*	*N/A*
Dunn-Edwards, Permasheen Acrylic W901, Int./Ext.	*235*	*36*	*350-375*	*N/A*	*6-8 hrs.*	***N/A***
Average Summary of Samples	**~~227~~ *201***	**~~34.5~~ *36.4***	**~~400~~ *406***		**~~4~~ *6.5* hrs**	**N/A**

Nonflats (Low-Gloss)- From 250 g/l to 150 g/l (3 Samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70deg./ Shelf Life
Earthtech Satin solid finish	232	39.46	400-450	Durable, Washable	2 hrs.	N/A
Frazee 126 Mirro glide Low Sheen i/e	243	36.7	150 rough concrete 350metal	1351	16 hrs.	N/A/ 2 years
~~Frazee Aro-plate II LS i/e~~	~~400~~	~~49~~	~~300-400~~	~~1500-2000~~	~~8 hrs.~~	~~N/A/ 2 years~~
ICI Dulux, Dulux Pro Eggshell AA, Interior	*175*	*37± 1*	*400*	*N/A*	*3 hrs.*	*N/A/ 1 year*
Average Summary of Samples	~~215~~ *217*	~~31.6~~ *37.7*	~~283-400~~ *358*		~~13~~ *7* **hrs.**	**N/A/** ~~2~~*1.5* **years**

TABLE D-28

Nonflats (High-Gloss) - from 150 g/l to 50 g/l (~~1~~ *7* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Frazee 041 Gloss latex interior	<150	34.5	200-300	Good mar, scuff resistant	8 hrs.	~~2 A~~ *N/A* /2 year
Sherwin-Williams, SuperPaint latex Enamel A85, Ext.	*119*	*42± 2*	*350-400*	*N/A*	*18 hrs.*	***N/A***
Vista Paint, Carefree 8500, Ext.	*145*	*36*	*300-400*	*N/A*	*8 hrs.*	*N/A*
Miller, Envirolac Legacy Acrylic Water Borne 2600, Int./ext.	*95*	*N/A*	*350-400*	*N/A*	*4 hrs.*	*N/A*
Target Coatings, Emtech U9300 top coat acrylic finishes	*60*	*32*	*333*	*UV resistant*	*N/A*	*N/A*
Pittsburgh Paints, Manor Hall Acrylic Latex Int/Ext	*149*	*38.1 ±2*	*200-250*	*Superior adhesion/ block resistance/ Scrubability*	*4 hrs.*	*N/A*
Pittsburgh Paints, Brilliant reflections latex Int/Ext.	*120*	*37.7 ±2*	*200-250*	*Easy cleaning*	*4 hrs.*	*N/A*

TABLE D-28 (CONTINUED)

Nonflats (High-Gloss) - from 150 g/l to 50 g/l (~~1~~ *7* samples)

Average Summary of Samples	**~~150~~ *120***	**~~34.5~~ *36.7***	**~~200-300~~ *305***		**8 hrs**	**N/A / 2yrs**

Nonflats (Semi-Gloss) - from 150 g/l to 50 g/l (~~5~~ *12* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70deg./ Shelf Life
Frazee 024 Speedsheen semi-gloss interior.	100	27.8	150-350	Flexible, washable	3-4 hrs.	N/A/2 years
Frazee 128 Satin Glide II i/e	~~141~~ *121*	33.5	200-300	Durable/ washable	16 hrs.	N/A/2 years
BenjamineMoore K&B 322 exterior	81	29	400-450	N/A	8 hrs.	N/A
Benjamin Moore Moorecraft Super Spec ex. Satin 184	111	30	450-500	N/A	4 hrs.	N/A
BenjaminMoore Moorcraft Semi-Gloss 283 ext.	116	27	400-450	Pass	12 hrs.	N/A
Color Wheel, Hi-Hide S/G 220, Interior	*105*	*33.5± 2.0*	*300-500*	*N/A*	*8 hrs.*	*N/A*
Color Wheel, Vina-Gloss latex enamel 420, Int.	*107*	*32.5± 2*	*300-500*	*N/A*	*8 hrs.*	*N/A*
Sherwin Williams, ProMar 200 Latex, Interior	*85*	*38± 2*	*350-400*	*N/A*	*N/A*	*N/A*
Rodda, Unique II Latex Enamel, Int./ext.	*147*	*34± 2*	*280*	*N/A*	*3 hrs.*	*N/A*
ICI Dulux, Ultra-Hide Durus	*79*	*41± 1*	*300-400*	*N/A*	*4 hrs.*	*N/A/1 year*
Porter, Interior latex 6079, Int.	*115 untinted*	*27± 2*	*200-300*	*N/A*	*4 hrs.*	*N/A*
Target Coatings, Emtech U9300 top coat acrylic finishes	*60*	*32*	*333*	*UV resistant*	*N/A*	*N/A*

Average Summary of Samples	**~~91.8~~ *102***	**~~29.4~~ 32**	**~~320-410~~ *351***		**~~8.6~~ *7* hrs.**	**N/A/~~2~~ *1.67* years**

TABLE D-28 (CONTINUED)

Nonflats (Low-Gloss) - from 150 g/l to 50 g/l (~~2~~ *22* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 dig./ Shelf Life
Frazee 02 lo-glo interior acrylic eggshell enamel	93	38.5	250-350	1121	18 hrs.	N/A/2 years
Frazee 026 speedsheen eggshell interior	114	36.1	200-300	Dirt resistant washable	18 hrs.	N/A/2 years
Color Wheel, *Optima Acrylic Satin 130, Ext.*	*99.4*	*37.4± 2*	*300-500*	*N/A*	*4 hrs.*	*N/A*
Color Wheel, *Satin House Paint 3400, Ext.*	*113*	*36.7± 2*	*300-500*	*N/A*	*4 hrs.*	*N/A*
Color Wheel, *Weathermaster 3730,* *Ext.*	*81*	*37± 2*	*300-500*	*N/A*	*4 hrs.*	*N/A*
Color Wheel, *Acrylic Conditioner 1252, Ext.*	*129*	*10± 2*	*250-400*	*N/A*	*4 hrs.*	*N/A*
Color Wheel, *Optima satin Supreme 230, Int.*	*146*	*35.6± 2*	*300-500*	*N/A*	*4 hrs.*	*N/A*
Sherwin-Williams, *ProMr200 Latex, egg-shel Interior*	*142*	*40± 2*	*350-400*	*N/A*	*4 hrs.*	*N/A*
Color Wheel, *Hi-Hide Latex Enamel 440, Int.*	*78*	*38.3± 2*	*300-500*	*N/A*	*8 hrs.*	*N/A*
Color Wheel, *Vina-Glo Latex Enamel 480, Int.*	*66*	*38.1± 2*	*300-500*	*N/A*	*8 hrs.*	*N/A*
Cloverdale Paint, *032 Super Eggshell Latex, Int.*	*125*	*38*	*350-450*	*N/A*	*N/A*	*N/A*
Rodda, *Unique II latex enamel, Ext./int.*	*137*	*34± 2*	*145*	*N/A*	*3 hrs.*	*N/A*
Sherwin Williams, *A-100 Latex Satin,* *A8 series, Ext.*	*112*	*33± 2*	*350-400*	*N/A*	*4 hrs.*	*N/A*
ICI Dulux, *Dulux Ultra Eggshell acrylic 1403, interior*	*112*	*41± 1*	*400*	*N/A*	*3 hrs.*	*N/A/1 year*
Vista, *8200 Carefree Velvasheen, Int.*	*148*	*43*	*300-400*	*N/A*	*4-6 hrs.*	*N/A*
Kelly-Moore, *SatN-Sheen Latex 1610, Int.*	*143*	*36*	*300-400*	*N/A*	*24hrs.*	*N/A*

TABLE D-28 (CONCLUDED)

Nonflats (Low-Gloss) - from 150 g/l to 50 g/l (~~2~~ *22* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 dig./ Shelf Life
PPG, *Speedhide Eggshell Latex 6-411, Int.*	*70.8*	*37.4± 2*	*400-500*	*N/A*	*4 hrs.*	*N/A*
Parker Paint, *Pro Satin Latex 5750, Int.*	*127*	*35.5± 1.5*	*300-350*	*N/A*	*4-8 hrs.*	*N/A*
Miller, *Pro-Jex Eggshell 1880, Int.*	*56*	*34.4*	*300-350*	*N/A*	*6 hrs.*	*N/A*
Kwal-Howells , *Accu-Tone Latex Eggshell 1903, Int.*	*88*	*33.62*	*250-375*	*N/A*	*4 hrs.*	*N/A*
Dunn-Edwards, *Tuff-Floor Porch & Deck 810, Int./ext.*	*145*	*37*	*75-200*	*N/A*	*4 hrs.*	*N/A*
Target Coatings, *Emtech U9300 top coat acrylic finishes*	*60*	*32*	*333*	*UV resistant*	*N/A*	*N/A*
Average Summary of Samples	**~~103.5~~ *108***	**~~37.3~~ *35.6***	**~~225-325~~ *343***		**~~18~~ *7* hrs.**	**N/A/ ~~2~~ *1.67* years**

N/A= NOT AVAILABLE

TABLE D-29

Nonflats (Gloss) - 50 g/l and less (3 samples)

Coating Company and Product Name	*VOC content (gm/l)*	*Solids (% by volume)*	*Coverage (sq ft/gal) @ ~3 mil*	*Recommended substrate/ exposure*	*Scrubability (# of cycles)*	*Drying time to recoat*	*Pot Life @70 deg./ Shelf Life*
Fuhr, *ZVOC acrylic Topcoat 5600*	*0*	*37*	*N/A*	*Wood substrate*	*N/A*	*30 min.*	*N/A*
Du Pont, *Imron 230ZV polyutethane enamel,*	*0*	*77*	*412*	*Metal finishing, harsh chemical environments (limited distribution)*	*N/A*	*6-8 hrs.*	*3hrs./9 months*
Sierra Performance Coatings S39 Gloss	*0*	*38*	*214*	*Wide variety of painted or primed surfaces*	*N/A*	*2-4 hrs.*	*N/A/1 year*
Average Summary of Samples	***0***	***50.7***	***313***			***3.5 hrs.***	***3 hrs./10.5 months***

TABLE D-29 (CONTINUED)

Nonflats (Semi-Gloss) - 50 g/l and less (~~10~~ *14* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Coronado, Air Care Acrylic Eggshell 1230-1 Int.	0	32.5	450	N/A	4 hrs.	N/A
Coronado, Air Care Acrylic Semi-gloss 926 Int.	0	39	450	N/A	4 hrs.	N/A
Earthtech semi-gloss	0	33.87	425	N/A	4 hrs.	N/A
Frazee 032Envirokote interior semi-gloss	20	30.6	200-400	>600	18 hrs.	N/A/2 years
Kelly-Moore 1520 Enviro-cote interior	0	36	300	N/A	4 hrs.	N/A
Kelly-Moore 1510 *interior*	0	39	300	N/A	4 hrs.	N/A
Sherwin Williams Harmony B10 semi-gloss int.	0	40 ±*2*	466	N/A	4 hrs.	N/A
BenjaminMoore Pristine Eco Spec interior semi-gloss 224	0	36	400	Good	2 hrs	N/A
Pristine Eco Spec Interior eggshell 223	0	36.4	400	Good	2 hrs	N/A
Union Tank Lithcote Aqua-flex.	0	52	278	N/A	N/A	N/A
Color Wheel, Low VOC Latex 5520, Int.	*1*	*36.6*	*300-500*	*N/A*	*4 hrs.*	*N/A*
Color Wheel, Low VOC Latex 5500	*1*	*32.5±2*	*300-500*	*N/A*	*4 hrs.*	*N/A*
California, Latex Semi-gloss 663XX, Int.	*35*	*39*	*250-350*	*N/A*	*2 hrs.*	*N/A*
Fuhr, ZVOC Acrylic Topcoat 5600 Int/Ext	*0*	*37*	*N/A*	*N/A*	*30 min.*	*N/A*

Average Summary of Samples	**~~2~~ *4***	**~~37.5~~ *37.2***	**~~336.9~~ *375***		**~~5.1~~ *4.3* hrs.**	**N/A/ 2 year**

N/A= NOT AVAILABLE

TABLE D-29 (CONCLUDED)

Nonflats (Low-Gloss) - 50 g/l and less (4 *7* samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Scrubability (# of cycles)	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Color Wheel, Low VOC latex 5540, Interior	*1*	*36.5±2*	*300-500*	*N/A*	*4 hrs.*	*N/A*
Earthtech Premium Satin Paint	0	35.47	425	N/A	4hrs.	N/A
Epmar, Kemiko Col-R-Tone III Acrylic Urethane Int./Ext.	*<50*	*60*	*300-400*	*N/A*	*1 hr.*	*N/A*
Frazee 029Envirokote: interior eggshell	5	49.7	300-400	Over 1000	18hrs.	N/A/2 years.
Fuhr, ZVOC White Acrylic Topcoat 5600 Int./Ext.	*0*	*37*	*N/A*	*N/A*	*30 min.*	*N/A*
Kelly-Moore, 1510 Enviro-cote acrylic enamel, Int.	*0*	*39*	*300*	*N/A*	*4 hrs.*	*N/A*
Sherwin Williams Harmony eggshell interior	0	39±*2*	450	N/A	4hrs.	N/A
~~Sherwin Williams Harmony primer int.~~	~~0~~	~~33~~	~~450~~	~~N/A~~	~~4hrs.~~	~~N/A~~

Average Summary of Samples	~~**1.25**~~ ***8***	~~**39.2**~~ ***42.4***	~~**418.75**~~ ***379***		~~**16.5**~~ ***5 hrs***	**N/A/ 2 years**

N/A= NOT AVAILABLE

TABLE D-30

Quick-Dry Primer, Sealer, Undercoater - 100 g/l and less (~~5~~ *4* samples)

(Numerous coatings listed in Primer, Sealer, Undercoater meet the dry time and gloss requirements of a Quick-Dry PSU)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	~~Adhesion Qualities~~ *Substrate/ exposure*	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
ADCO PUR-100 Sealant	80	N/A	N/A	Pre-paint metals, glass, plastic	~~N/A~~ *300 lbs/in tare*	24 hrs	N/A/1 year
ADCO PUR-200 Sealant/ Adhesive	76	N/A	N/A	Metals, glass aluminum and plastic	~~N/A~~ *300 psi tensile strength*	24 hrs.	N/A/9 months
~~Advanced protective Products Rust Knock Out~~	~~30~~	~~45.71~~	~~300~~	~~Good, varied applications~~	~~Corrosion resistant~~	~~2-3 hrs~~	~~N/A~~
~~Emtech-~~ Emtech 8800 sealer *Target Coatings*	50	40	375	Wood or paneling	Non-combustible	1 hr.	N/A/1 year
~~Emtech- Emtech U9300 top coat acrylic finishes~~	~~60~~	~~32~~	~~750~~	~~Interiors~~	~~UV resistant~~	~~N/A~~	~~N/A~~
Resene, D45 Quick Dry Acrylic primer undercoater	*64*	*N/A*	*12.5 sq. meters/ litre @35 microns*	*Various Substrates*	*N/A*	*2-4 hrs.*	*N/A*
Average Summary of Samples	**~~59.2~~ *67.5***	**~~39.2~~ *40***	**~~475~~ *N/A***			**~~7.87~~ *13* hrs**	**N/A / 11 months**

N/A= NOT AVAILABLE

TABLE D-31

Roof Coatings- 250g/l and less (~~6~~ *7* Samples)

Coating Company and Product Name	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	~~Adhesion Qualities~~ *Substrate/ exposure*	Durability Qualities	Pot Life @70 deg./ Shelf Life
Andek Polaroof SP, *W/B* 1	0	~~69~~*N/A*	~~400~~ *100/1-1/4-1-3/4 gal @20mils*	~~N/A~~ Dry, clean roof surfaces	4mm indent on impact resistance	N/A/ 1 year
Andek Polaroof AC, 1	10	~~73~~*N/A*	~~400~~ *100/1-1/4-1-3/4 gal @20mils*	~~N/A~~ Dry, clean roof surfaces	4mm indent, pass	N/A/12 months
Andek Polaroof Firegard, 1	0	~~60~~*N/A*	120/*gal @16mils*	~~N/A~~ Dry, clean roof surfaces	Impact resistant.	N/A/ 1 year
Andek Polaroof RAC, 1	200	N/A	100/2-3 gal @30mils	~~N/A~~ Dry, clean roof surfaces	Puncture resistant up to 120 psi	N/A / 1 year
Andek Polaroof RAC-OZ, 2	160	~~84~~*N/A*	50/gal @30mils	~~N/A~~ Dry, clean roof surfaces	Shore 'A' Hardness 65	6 hrs/1 year
Andek Silver Film, 1	150	~~75~~*N/A*	360/gal @3mils	~~100psi~~ Dry, clean roof surfaces	Softening point 240F	N/A/ 2 years
Color Wheel, Tropicoat Roof Paint 340, 1	*61*	*38.3±2*	*200*	*Residential, architectural, commercial and light industrial applications for masonry roofs*	*Alkali and efflorescence resistant*	*N/A*
Average Summary of Samples	**~~86.6~~** *83*	**~~72.2~~** *38.3*	**~~292.6~~** *N/A*			**6 hrs. / 1.16 yr**

N/A= NOT AVAILABLE

TABLE D-32

High Temperature IM Coatings - 420g/L and less (~~12~~ *14* Samples)

Coating Company and Product Name, components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	~~Adhesion Qualities~~ *Substrate/ exposure*	Temperature Resistance (°F)	Pot Life @70 deg./ Shelf Life
Dampney Thurmalox 70C, 1	413	52	278	~~N/A~~ *Stainless steel piping, vessels, and equipment*	700	N/A/1 year
Dampney Thurmalox 200C, 1	~~410~~ *414*	42	219	~~N/A~~ *Stacks, reformers, furnaces, compressors, piping, process vessels, heater, boiler casings, engines, pumps*	500	N/A/1 year
Dampney Thurmalox 210C, 2	~~384~~ *381*	30	160	~~N/A~~ *Stacks, refinery equipment, reformers, furnaces, turbines, engines, Pumps, manifolds, hear exchangers*	500	N/A/1 year
Dampney, Thurmalox 215 Primer, 2	*215.7*	*67*	*332*	*Insulated hot equipment and piping and equipment exposed to severer thermal shock to 450°*	*450*	*2 hrs./1 year*
Dampney Thurmalox 216, *Topcoat* 2	~~312~~ *316.4*	62	332	~~N/A~~ *Insulated hot equipment and piping and equipment exposed to severer thermal shock to 450°*	450	2 hrs./1 year
Dampney Thurmalox 218, ~~4:1~~ *primer*	~~264~~ *263*	61	329	~~N/A~~ *Metal surfaces, equipment exposed to wet-dry-wet cyclic conditions from ambient to 450°*	450	2 hrs./1 year
Dampney, Thurmalox 219 Topcoat ,2	*312*	*56*	*329*	*Metal surfaces, equipment exposed to wet-dry-wet cyclic conditions from ambient to 450°*	*450*	*2 hrs./1 year*
Dampney Thurmalox 225HB, 1	~~336~~ *333*	60	320	~~N/A~~ *Stacks, Manifolds, mufflers, hot piping, process vessels, refinery equipment, furnaces, ovens*	1000	N/A/1 year
Dampney Thurmalox 230C, 1	371.*5*	56	300	~~N/A~~ *Stacks, Manifolds, mufflers, hot piping, process vessels, refinery equipment, furnaces, ovens*	1000	N/A/1 year

TABLE D-32 (CONCLUDED)

High Temperature IM Coatings - 420g/L and less (~~12~~ *14* Samples)

Coating Company and Product Name, components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	~~Adhesion Qualities~~ *Substrate/ exposure*	Temperature Resistance (°F)	Pot Life @70 deg./ Shelf Life
Dampney Thurmalox 245C, 2	~~399~~ *395.5*	50	278	~~N/A~~ *Stacks, breechings, boiler casings, exhausts, hear exchangers, heaters, crackers, furnaces*	1000	8 hrs/6 months
Dampney Thurmalox 260C, 1	~~384~~ *381*	60	350	~~N/A~~ *Provides an early warning indicator of process vessel overheating due to gas bypassing or refractory failure*	500	N/A/1 year
Dampney Thurmalox 280C, 1	419	38	203	~~N/A~~ *Stacks, breechings, heaters, cracker, reformers, kilns, ovens, compressors, engines, piping, pumps*	1200	N/A/1 year
Dampney Thurmalox 2600, 1	371	56	300	~~N/A~~ *Interior walls of boilers, furnaces, breechings, ducts, and stacks. Dry scrubbers*	600	N/A/1 year
Dampney Thurmalox 2804, 1	~~156~~ *155*	28	150	~~N/A~~ *Stacks, breechings, boiler casings, refinery equipment, reformers, kilns, ovens, engines, manifolds*	1000	N/A/1 year

* ASTM D2197 test method

Average Summary of Samples	**~~351.5~~** ***339***	**~~49.5~~** ***51.3***	**~~268.25~~** ***277***			**4** ***3.2*** **hrs / 1 years**

N/A= NOT AVAILABLE

TABLE D-33

Primer, Sealer, Undercoater – 200g/L –100g/L (4 samples)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Morwear, Primer Xcel Acrylic Stain Blocking Primer 2098 Int/Ext	<200	39.76	212	Wood, masonry, stucco, brick, non-ferrous metal	Stain blocking	4 hrs.	N/A
Columbia, Premium Pro Latex Enamel undercoater 02-735 Int.	120	37	197	Interior drywall, masonry	Must be topcoated	2-4hrs.	N/A/2 years
Parker Paint, Stain Resistant Primer 1833 Acrylic latex Ext.	128	31 ± 1.5	165	Concrete, masonry, stucco	N/A	4 hrs.	N/A
Insl-X, Aqualock W/B primer, sealer, stain killer AQ-0500	118	43	229	Industrial applications over painted surfaces, top or mid coat	Cross Hatch adhesion- 5	N/A	N/A/1 year
Average Summary of Samples	***141.5***	***37.7***	***200.8***			***3.7 hrs***	***N/A / 1.5 years***

N/A= NOT AVAILABLE

TABLE D-34

Primer, Sealer, Undercoater - 100 g/l and less (23 samples)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Epmar, Kemiko Clear Acrylic Urethane 1	<50	30	300-400	Concrete, plaster, wood, FRP, GFRC, metals	Stain resistant	1 hr.	N/A
Color Wheel, Ti-Guard Sealer 430, Interior Flat	98	28.5±2	146	Wall board, plaster, masonry, stucco, wood, plywood	Interior use only	4 hrs.	N/A
Color Wheel, WaterBorne Undercoat 8300, Interior	73.09	37±2	210	Wall board, plaster, masonry, stucco, wood, plywood	Excellent enamel holdout	1 hr.	N/A
Columbia, Materpiece Ary-prime 5-200,1	84	40	360	Various substrates	Stain blocking	1 hr.	N/A/2 years
Rodda, Heavy Body Scotseal, Interior	87	39±2	330	Primer under alkyd or emulsion finishes on drywall	N/A	2-3 hrs.	N/A

TABLE D-34 (CONTINUED)

Primer, Sealer, Undercoater - 100 g/l and less (23 samples)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Sherwin Williams, PrepRite 200 latex primer, Int.	86	28± 2	400	Drywall, masonry, concrete,	N/A	4 hrs.	N/A
Kwal-Howells, Pro-Finish Acrylic primer 5860 Int./ext.	77	42.7	250-350	Wood, concrete, plastic, hardboard, metal, drywall	Alkali Resistant	4 hrs.	N/A
ICI Dulux, Ultra-Hide PVA primer/sealer 1030, int.	96	26± 1	40	Drywall, concrete block, brick	N/A	2 hrs.	N/A/1 year
ICI Dulux, Dulux Pro Acrylic Primer 2000, Exterior	95	50± 1	300-500	Exterior wood, concrete , masonry, non-ferrous metal	Mildew resistant	1 hr.	N/A/1 year
ICI Dulux, Ultra Hide Aquacrylic Gripper 3210, Int./Ext.	95	50± 1	300-450	Various substrates	Moisture and alkali resistant	1 hr.	N/A/1 year
Sherwin Williams Harmony primer int.	0	33± 2	450	Masonry, drywall, concrete, plaster	N/A	4 hrs.	N/A
Sherwin Williams, Latex Primer A-100 Ext.	89	36± 2	350-400	Wood and plywood	Mildew Resistant	4 hrs.	N/A
ICI Dulux, Ultra-Hide Aquacrylic GRIPPER 3210 Int./Ext.	95	50± 1	300-450	Wood, masonry, Previously painted surfaces	Stain Blocking	1 hr.	N/A/1 year
Surface Protection Industries, Acry Tone 90-Line	100	N/A	N/A	N/A	N/A	N/A	N/A
Pittsburgh Paints, Seal Grip Acrylic Latex Stain Blocking Primer Int/Ext	96	37.8 ±2	200-250	Aluminum, masonry, stucco, wallboard, wood, plaster	Stain Blocking	1 hr	N/A
Frazee Paint, 172 Grip-N-Seal Acrylic primer Int/Ext.	96	33	100-300	Various substrates	Stain blocking	2-3hrs.	N/A
Morwear Quick Grip Quick Dry Enamel Undercoater Int/Ext	91	40.44	200-400	Various Substrates	N/A	2 hrs.	N/A
Zinsser, Bulls Eye 123 W/B Primer sealer	100	N/A	400-450	Various Substrates	Stain killer	N/A	N/A
Glidden, Ultra-hide 250 Gripper Stain Killer	97	49	68	Various Substrates	Stain Killer	1 hr.	N/A
Columbia, Masterpiece Acry-Prime 05-200 Int/Ext	84	41 ±1	540	Various Substrates	Stain Blocker	1 hr.	N/A/2 years

TABLE D-34 (CONCLUDED)

Primer, Sealer, Undercoater - 100 g/l and less (23 samples)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Color Your World, 8791 Acrylic Blokker Int/Ext	97	49	68	Wood, plaster, drywall, concrete, stucco ,masonry	Stain Blocker	2 hrs.	N/A
Frazee 168 Prime+Plus Acrylic primer/sealer/stain killer Int/Ext.	58	44.6	100-350	Various substrates	Stain killer , resistant to pH 13	2-3hrs.	N/A
Sherwin-Williams, PrepRite ProBlock Latex primer sealer B51 Int/Ext	99	36 ±2	533	Various Substrates	Seals out solvent sensitive stains	1hr as primer 4hrs stain sealer	N/A

Average Summary of Samples	84.5	39.1	304.3			2.1 hrs	N/A / 1.3 years

N/A= NOT AVAILABLE

TABLE D-35

Stains - 350g/l to 250 g/l (1 sample)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Resistance to UV exposure	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Benjamin Moore, Moorewood Siding Stain 089, 1	<350	30	200-400	Interior rustic paneling, beams, and rafters	Mildew resistant	3 hrs.	N/A

Average Summary of Samples	350	30	300			3	N/A

N/A= NOT AVAILABLE

TABLE D-36

Stains - 250g/l and less (13 samples)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Resistance to UV exposure	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Cloverdale, Acrylic Wood Stain 066, Exterior	103	36	200-500	Wood	N/A	2 hrs.	N/A
Columbia, Woodtech Solid Color Latex Stain 09-400	71	34	290	Wood siding, hardboard, brick, concrete, aluminum	N/A	2 hrs.	N/A/2 years
Kwal-Howell, Rustic wood 100% acrylic solid color 6200 Ext.	114	30.6	200	wood siding, beams, clapboard, hardboard, shakes,	N/A	4 hrs.	N/A
Porter, Wood Guardian Acrylic 1919, Int./ext.	108	26±2	300-400	Wood siding, trim, shakes, shingles, fencing	N/A	4 hrs.	N/A
Sherwin Williams, ProMar Acrylic Latex Stain A16, Ext.	97	32±2	200-400	Wood, sawn lumber, plywood, shakes, shingles	N/A	4 hrs.	N/A
Fuhr, ZVOC Universal Stain 155, Interior	0	14	N/A	Any wood surface	N/A	20 min.	N/A
Fuhr, SVOC exterior waterbased 5800	0	14.3	N/A	Furniture, molding, millwork, cabinets	N/A	20 min.	N/A
Vista Paint, 3000 Acribond Ext.	97	40	300-400	wood, masonry, previously painted surfaces	N/A	4-6 hrs.	N/A
ICI Dulux, Wood Pride Solid Color Stain 2600	139	28±1	350-450	Siding, clapboard, shakes, shingles, beams, fences	Provides UV protection	4 hrs.	N/A/1 year
ICI Dulux, Woodpride W/B semi-Transparent Stain 2610 ext.	148	24±1	150-250	Above ground exterior bare wood, siding, shingles, etc.	UV protection	1 hour to touch	N/A/1 year
Monopole, Monochem Aquaseal 2 for wood 3500	0	11.4	60-250	Siding, rim, fencing plywood, shakes, shingles, lumber	N/A	N/A	N/A
Okon, Weatjer Pro OK-710,	67	N/A	50-150	Decks, fencing, shakes, siding	N/A	2 hours to touch	N/A
Vista paint, WN11 Interior wiping Stain	245	19	101	Interior decorative wood	N/A	2-3 hrs.	N/A
Average Summary of Samples	**91.5**	**25.8**	**254.2**			**2.6 hrs.**	**N/A / 1.3 years**

TABLE D-37

Quick Dry Enamels - 400g/l to 150 g/l (5 sample)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Gloss Characteristics	Drying time to touch	Drying time to recoat	Pot Life @70 deg../ Shelf Life
Vanex, Inc., Breakthru Satin-Clear	249	N/A	N/A	N/A	N/A	N/A	N/A
Vanex, Inc., Breakthru Sat-Wrtirnblk	242	N/A	N/A	N/A	N/A	N/A	N/A
Vanex, Inc., Breakthru GLS-Pastel BS	215	N/A	N/A	N/A	N/A	N/A	N/A
Ellis, Hy-Lux W/B Ind. Ena. Yellow 1219	250	30-32	165	80+	30 min.	1-2 hrs.	N/A
Ellis, W/B Ind. Acry. Ena. Med. Green 1225	244	30-32	165	80+	30 min.	1-2 hrs.	N/A
Average Summary of Samples	**240**	**31**	**165**			**1.5 hrs.**	**N/A**

N/A= NOT AVAILABLE

TABLE D-38

Waterproofing Sealers, Wood- 250g/L and less (1 sample)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended Substrate/ exposure	Drying time to touch	Drying time to recoat	Pot Life @70 deg../ Shelf Life
Monopole, Monochem Aquaseal 2 for wood 3500	0	11.4	60-250	Siding, rim, fencing plywood, shakes, shingles, lumber	N/A	N/A	N/A
Average Summary of Samples	**0**	**11.4**	**155**			**N/A**	**N/A**

N/A= NOT AVAILABLE

TABLE D-39

Traffic Paint - 150 g/l and less (2 sample)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended Substrate/ exposure	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Pervo Paint Company, 6103 Yellow L/F RD Acetone-Based Traffic	150	N/A	500	Streets, curbs	No cracking on ½" mandrel	N/A	N/A
Advanced Protective products, Acrylic latex traffic paint	68	N/A	200-400	macadam, wood, asphalt, concrete, brick	Highly durable	4 hrs.	N/A
Average Summary of Samples	**109**	**N/A**	**400**			**4 hrs.**	**N/A**

N/A= NOT AVAILABLE

TABLE D-40

Shellac, Clear-730g/L and less (1 sample)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Zehrung Corp., Shellac Solution 10003 Clear	609	35.5	N/A	N/A	N/A	N/A	N/A
Average Summary of Samples	**609**	**35.5**	**N/A**			**N/A**	**N/A**

N/A= NOT AVAILABLE

TABLE D-41

Clear Brushing Lacquers-680 g/L and less (2 samples)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq ft/gal) @ ~3 mil	Recommended substrate/ exposure	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Trinity Coatings, Nitro LC-530 Water White Clear Lacquer Series	550	15.8 ± 2	118	High quality furniture, cabinets	Non-yellowing	30-45 min.	N/A
Trinity Coatings, Nitro LS-520 Water White Lacquer Sanding Sealer	550	12 ±2	66	Apply to bare wood on furniture, pianos, cabinets	Non Yellowing	25-45 min.	N/A
Average Summary of Samples	**550**	**13.9**	**92**			**36.3 min.**	**N/A**

N/A= NOT AVAILABLE

TABLE D-42

Pigmented Lacquers-550 g/L-275 g/L (1 sample)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Frazee, Flat White Lacquer 714	550	28.08±5	150	Dry clean surfaces	N/A	N/A	N/A
Average Summary of Samples	**550**	**28.08**	**150**			**N/A**	**N/A**

N/A= NOT AVAILABLE

TABLE D-43

Rust Preventative Coatings- 100g/L and less (1 sample)

Coating Company, and Product Name, Components	VOC content (gm/l)	Solids (% by volume)	Coverage (sq. ft/gal) @ ~3 mil	Adhesion Qualities	Durability Qualities	Drying time to recoat	Pot Life @70 deg./ Shelf Life
Advanced Protective Products Rust Knock Out	30	N/A	300	Directly over rust, bare metal or painted metal	Corrosion resistant	2-3 hrs	N/A
Average Summary of Samples	**30**	**N/A**	**300**			**2-3 hrs**	**N/A**

N/A= NOT AVAILABLE

APPENDIX E

RISK ASSESSMENT METHODOLOGIES

METHODOLOGIES FOR RISK ASSESSMENT

The following presents the methodologies the SCAQMD used to estimate the toxic risks associated with the implementation of PAR 1113. The reader referred to the attached spreadsheets for the variables and assumptions used in these methodologies. The reader is also referred to the SCAQMD's Risk Assessment Procedures for Rules 1401 and 212 (November 1998) for a more detailed discussion of risk assessment procedures.

Health risk assessment is used to estimate the likelihood that an individual would contract cancer or experience other adverse health effects as a result of exposure to toxic air contaminants. Risk assessment is a methodology for estimating the probability or likelihood that an adverse health effect will occur. The risk assessment procedures for PAR 1401 are consistent with current recommendations by Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA). OEHHA is the state agency with primary responsibility for developing and recommending risk assessment methods

Carcinogenic Analysis

The equation for calculating MICR is:

$$\text{MICR} = \text{Qyr} \times \text{U} \times \left(\frac{\text{X}}{\text{Q}}\right) \times \text{MET} \times \text{MP} \times \text{LEA}$$

$$\text{Qyr} = \text{Amount of Toxic Emissions, } \frac{\text{tons}}{\text{yr}}$$

$$\text{U} = \text{Toxic Unit Risk Factor, } \left(\frac{\mu\text{g}}{\text{m}^3}\right)^{-1}$$

$$\left(\frac{\text{X}}{\text{Q}}\right) = \text{Dispersion Factor, } \left(\frac{\mu\text{g}}{\text{m}^3} \Big/ \frac{\text{tons}}{\text{yr}}\right)$$

$$\text{MET} = \text{Metrological Correction Factor}$$

$$\text{MP} = \text{Multi - Pathway Adjustment Factor}$$

$$\text{LEA} = \text{Life Time Exposure Adjustment Factor}$$

Knowing that the SCAQMD significance threshold for toxics is MICR >10×10^{-6}, the following equation is used to estimate the yearly toxic emissions that would have to be emitted to exceed this threshold.

$$\text{Qyr} = \frac{\text{MICR}}{\text{U} \times \left(\frac{\text{X}}{\text{Q}}\right) \times \text{MET} \times \text{MP} \times \text{LEA}}$$

To calculate the amount of daily toxic emissions that would have to be emitted to exceed a MICR >10x10^{-6}, the following equation is used.

$$\text{Qday}, \frac{\text{lbs}}{\text{day}} = \frac{\text{Qyr}}{\text{Days}} \times \frac{2000\ \text{lbs}}{\text{ton}}$$

$$\text{Qyr} = \text{Amount of Toxic Emissions}, \frac{\text{tons}}{\text{yr}}$$

$$\text{Days} = \text{Coating Application}, \frac{\text{days}}{\text{yr}}$$

Knowing the daily toxic emissions, the daily coating usage necessary to exceed a MICR >10x10^{-6} can be estimated using the following equation.

$$\text{Usage}, \frac{\text{gal}}{\text{day}} = \frac{\text{Qday}}{\text{Density} \times \left(\frac{\%\text{Tox}}{100}\right)}$$

$$\text{Qday} = \text{Amount of Toxic Emissions}, \frac{\text{lbs}}{\text{day}}$$

$$\text{Density} = \text{Density of Coating}, \frac{\text{lbs}}{\text{gal}}$$

$$\%\text{Tox} = \text{Percentage of Toxic Compound in Coating}, \%$$

Chronic Analysis

The equation for calculating HIC is:

$$\text{HIC} = \frac{\text{Qyr} \times \left(\frac{\text{X}}{\text{Q}}\right) \times \text{MET} \times \text{MP}}{\text{REL}}$$

$$\text{Qyr} = \text{Amount of Toxic Emissions}, \frac{\text{tons}}{\text{yr}}$$

$$\left(\frac{\text{X}}{\text{Q}}\right) = \text{Dispersion Factor}, \left(\frac{\mu\text{g}}{\text{m}^3} \Big/ \frac{\text{tons}}{\text{yr}}\right)$$

$$\text{MET} = \text{Metrological Correction Factor}$$

$$\text{MP} = \text{Multi - Pathway Adjustment Factor}$$

$$\text{REL} = \text{Re ference Expsoure Level}$$

Knowing that the SCAQMD significance threshold for toxics is HI >1, the following equation is used to estimate the yearly toxic emissions that would have to be emitted to exceed this threshold.

$$Qyr = \frac{HIC \times REL}{\left(\frac{X}{Q}\right) \times MET \times MP}$$

To calculate the amount of daily toxic emissions that would have to be emitted to exceed a HI >1, the following equation is used.

$$Qday, \frac{lbs}{day} = \frac{Qyr}{Days} \times \frac{2000\,lbs}{ton}$$

$$Qyr = \text{Amount of Toxic Emitted}, \frac{tons}{yr}$$

$$Days = \text{Coating Application}, \frac{days}{yr}$$

Knowing the daily toxic emissions, the daily coating usage necessary to exceed a HI >1 can be estimated using the following equation.

$$Usage, \frac{gal}{day} = \frac{Qday}{Density \times \left(\frac{\%Tox}{100}\right)}$$

$$Qday = \text{Amount of Toxics Emitted}, \frac{lbs}{day}$$

$$Density = \text{Density of Coating}, \frac{lbs}{gal}$$

$$\%Tox = \text{Percentage of Toxic Compound in Coating}, \%$$

Acute Analysis

The equation for calculating HIA is:

$$\mathrm{HIC} = \frac{\mathrm{Qhr} \times \left(\frac{X}{Q}\right)_{max}}{\mathrm{REL}}$$

$$\mathrm{Qhr} = \text{Amount of Toxic Emitted}, \frac{\mathrm{lbs}}{\mathrm{hr}}$$

$$\left(\frac{X}{Q}\right)_{max} = \text{Dispersion Factor}, \left(\frac{\mu g}{m^3} \Big/ \frac{\mathrm{tons}}{\mathrm{yr}} \right)$$

$$\mathrm{REL} = \text{Re ference Expsoure Level}$$

Knowing that the SCAQMD significance threshold for toxics is HI > 1, the following equation is used to estimate the hourly toxic emissions that would have to be emitted to exceed this threshold.

$$\mathrm{Qhr} = \frac{\mathrm{HI} \times \mathrm{REL}}{\left(\frac{X}{Q}\right)_{max}}$$

Knowing the hourly toxic emissions, the daily coating usage necessary to exceed a HIA > 1 can be estimated using the following equation.

$$\text{Usage}, \frac{\mathrm{gal}}{\mathrm{day}} = \frac{\mathrm{Qhr} \times \mathrm{Hours}}{\mathrm{Density} \times \left(\frac{\%\mathrm{Tox}}{100}\right)}$$

$$\mathrm{Qhr} = \text{Amount of Toxic}, \frac{\mathrm{lbs}}{\mathrm{hrs}}$$

$$\mathrm{Hours} = \text{Coating Application}, \frac{\mathrm{hrs}}{\mathrm{day}}$$

$$\mathrm{Density} = \text{Density of Coating}, \frac{\mathrm{lbs}}{\mathrm{gal}}$$

$$\%\mathrm{Tox} = \text{Percentage of Toxic Compound in Coating}, \%$$

"Real-Case" Analysis

Compound	% by wt.	Unit Risk Factor	Chronic REL	Acute REL	MICR MP	Chronic MP	Target Organs
		1/(ug/m3)	ug/m3	ug/m3			
Toluene	10		2.00E+02	4.00E+04		1	CNS/PNS, Repr
Xylene	10		3.00E+02	4.40E+03		1	Repr, Resp
Methyl Ethyl Ketone*	10		1.00E+03	3.00E+04		1	Repr
Isopropol Alchol*	10		2.00E+03	3.00E+03		1	CV/BL, CNS/PNS, Immun
Ethylene Glycol*	10		4.00E+02			1	Resp, Skin, Kidn, Repr
Propylene*	10		3.00E+03			1	Resp
Glycol Ethers & Acetates	10		2.00E+01	1.53E+03		1	Resp
EGBE	10		2.00E+01	1.50E+03		1	CV/BL
EGEE	10		2.00E+02	3.70E+02		1	Repr, CV/BL
EGME	10		2.00E+01	3.30E+02		1	Repr
Toulene Diisocyante	*1*	1.10E-05	9.50E-02		1	1	Resp
Hexmethylene Diisocyanate*	*1*		1.00E-02			1	Resp
Isocyanate	*1*		9.50E-02			1	Resp

Assumptions

Coating	Density	10.5	lbs/gal
	hrs/day	8	
	days/yr	260	
	Stack Ht	Ground Level	
	Receptor	Residential	
	Location	West LA	
Signficance Threshold for	MICR	1.00E-05	
Signficance Threshold for	HIC	1	
Signficance Threshold for	HIA	1	

Input Variables

Distance to Receptor	X/Q	X/Qmax	MET	LEA
m	ug/m3 / tons/yr	ug/m3 / lb/hr		
25	51.18	2000	1.00	1
50	16.88	1000.6	1.00	1
100	4.51	373.5	1.00	1

Carcinogenic Analysis (MICR)

	25m			50m			100m		
Compound	**QYR**	**QDAY**	**Usage**	**QYR**	**QDAY**	**Usage**	**QYR**	**QDAY**	**Usage**
	tons/yr	lbs/day	gals/day	tons/yr	lbs/day	gals/day	tons/yr	lbs/day	gals/day
Toulene Diisocyante	0.02	0.14	1.30	0.05	0.41	3.95	0.20	1.55	14.77

Chonic Exposure Analysis (HIC)

Compound	25m QYR	25m QDAY	25m Usage	50m QYR	50m QDAY	50m Usage	100m QYR	100m QDAY	100m Usage
	tons/yr	lbs/day	gals/day	tons/yr	lbs/day	gals/day	tons/yr	lbs/day	gals/day
Toluene	3.9078	30.060	28.628	11.848	91.141	86.801	44.346	341.122	324.878
Xylene	5.8617	45.090	42.943	17.773	136.712	130.202	66.519	511.683	487.318
Methyl Ethyl Ketone	19.5389	150.299	143.142	59.242	455.705	434.005	221.729	1705.611	1624.392
Isopropol Alchol	39.0778	300.598	286.284	118.483	911.411	868.010	443.459	3411.223	3248.784
Ethylene Glycol	7.8156	60.120	57.257	23.697	182.282	173.602	88.692	682.245	649.757
Propylene	58.6166	450.897	429.426	177.725	1367.116	1302.016	665.188	5116.834	4873.176
Glycol Ethers & Acetates	0.3908	3.006	2.863	1.185	9.114	8.680	4.435	34.112	32.488
EGBE	0.3908	3.006	2.863	1.185	9.114	8.680	4.435	34.112	32.488
EGEE	3.9078	30.060	28.628	11.848	91.141	86.801	44.346	341.122	324.878
EGME	0.3908	3.006	2.863	1.185	9.114	8.680	4.435	34.112	32.488
Toulene Diisocyante	0.0019	0.014	0.136	0.006	0.043	0.412	0.021	0.162	1.543
Hexmethylene Diisocyanate	0.0002	0.002	0.014	0.001	0.005	0.043	0.002	0.017	0.162
Isocyanate	0.0019	0.014	0.136	0.006	0.043	0.412	0.021	0.162	1.543

Acute Exposure Analysis (HIA)

Compound	25m QHR	25m Usage	50m QHR	50m Usage	100m QHR	100m Usage
	lbs/hr	gals/day	lbs/hr	gals/day	lbs/hr	gals/day
Toluene	20.00	152.38	39.98	304.58	107.10	815.96
Xylene	2.20	16.76	4.40	33.50	11.78	89.76
Methyl Ethyl Ketone	15.00	114.29	29.98	228.43	80.32	611.97
Isopropol Alchol	1.50	11.43	3.00	22.84	8.03	61.20
Glycol Ethers & Acetates	0.77	5.84	1.53	11.67	4.10	31.27
EGBE	0.75	5.71	1.50	11.42	4.02	30.60
EGEE	0.19	1.41	0.37	2.82	0.99	7.55
EGME	0.17	1.26	0.33	2.51	0.88	6.73

*Proposed OEHHA Values

APPENDIX F

RESPONSES TO COMMENTS ON THE DRAFT SUBSEQUENT ENVIRONMENTAL ASSESSMENT

Comment Letter #1:	**Sanitation Districts of Los Angeles County**
Comment Letter #2:	**Society for Protective Coatings**
Comment Letter #3:	**Benjamin Moore & Co.**
Comment Letter #4:	**Kessler & Associates, Inc.**
Comment Letter #5:	**National Paint & Coatings Association**
Comment Letter #6:	**Smiland & Khachigian**
Comment Letter #7:	**Southern California Association of Governments**

The SCAQMD received a total of seven comment letters on the Draft SEA for PAR 1113. The SCAQMD also received CEQA-related comments during the March 31, 1999, and April 28, 1999 Public Consultation Meetings. The comment letters and responses to the comments contained in the seven letters as well as responses to Public Consultation Meetings comments are contained herein.

COMMENT LETTER #1

SANITATION DISTRICTS OF LOS ANGELES COUNTY

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422

CHARLES W. CARRY
Chief Engineer and General Manager

April 21, 1999

File No: 31-380.10B

Mr. Darren W. Stroud
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

Dear Mr. Stroud:

Comments on PAR 1113 Draft Subsequent Environmental Assessment

The County Sanitation Districts of Los Angeles County (LACSD) appreciate the opportunity to comment on PAR 1113 Draft Subsequent Environmental Assessment dated March 19, 1999. Our comments are as follows:

1-1 In the environmental assessment, SCAQMD staff determined the durability of low VOC coatings is comparable to conventional coatings based on qualitative descriptions from product data sheets. The information contained in the product data sheets must be verified through laboratory and field testing before the durability of the coating can be judged. LACSD is interested in working with the SCAQMD in evaluating the durability of low or zero VOC coatings for wastewater applications as part of the technology assessments.

1-2 SCAQMD should conduct additional research into the potential for public exposure to diisocyanates from spraying low or zero VOC two-component polyurethane. On page 4-57, SCAQMD commits to conducting a technical assessment one year prior to each rule limit to determine if environmental issues are associated with the manufacture and use of reformulated products. It is not clear whether the technology assessment will be started or completed one year prior to the implementation dates. The technology assessments should be completed one year prior to allow end-users adequate time to prepare for the new products.

1-3 In the response to the Du Pont comment letter section 8-3 on page C-8-1, staff stated that SCAQMD appreciates the need for end-users to evaluate the performance of low VOC coatings. Even though the compliance dates have been extended, end-users can only evaluate coatings as they become commercially available. Industrial maintenance coatings typically have a shelf life of one-year, therefore, it should not be assumed that end-users can use non-compliant coatings for an

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Darren W. Stroud 2 April 21, 1999

1-3 cont. additional three years after the implementation dates.

Thank you for an opportunity to express our concerns and we look forward to working with SCAQMD in the technology assessment. If you have any questions, please contact Ms. Preeti Ghuman of this office at (562) 699-7411, extension 2138.

Yours very truly,

Charles W. Carry

for Gregory M. Adams
Assistant Departmental Engineer
Office Engineering Department

GMA:PKG:tk

cc: Naveen Berry

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COMMENT LETTER #1
Sanitation Districts of Los Angeles County
April 21, 1999

1-1 The commentator asserts that the information contained in product data sheets regarding coating durability must be verified through laboratory and field testing. The SCAQMD staff evaluated the durability of low-VOC coatings based on both the qualitative (e.g. excellent adhesion) as well as quantitative (e.g. adhesion of 800 per ASTM Test Method D4541-05) information from the product data sheets. For PAR 1113 the SCAQMD staff conducted an exhaustive and comprehensive analysis of currently available low VOC compliant as well as conventional coatings that forms the primary basis for PAR 1113. This analysis evaluated hundreds of coatings from approximately 40 manufacturers and considered the following coating characteristics: VOC content, percent solids by volume, coverage, adhesion, durability, pot life, shelf life, gloss, and drying time. The conclusion of this analysis reveals that low-VOC complaint coatings are currently commercially available with comparable durability characteristics to meet the interim and final VOC content limits. The SCAQMD staff will continue to monitor future studies and encourage public participation. The commentator is also referred to response to comment #2-1.

1-2 The commentator indicates that SCAQMD staff should conduct additional research concerning the potential exposure of the public to the release of diisocyanate compounds during the spraying of zero- or low-VOC two component IM systems. At the time of the release of the Draft SEA on March 23, 1999, PAR 1113 contained a provision that prohibited the spraying of two component IM systems containing diisocyanate compounds beginning January 1, 2005. This provision was thought to be necessary to protect the public from the potential adverse effects of exposure to these compounds, which are mainly a concern during spraying applications for two-component coating systems. However, based on testimony received at the Public Consultation Meeting on March 31, 1999, and additional research conducted by the SCAQMD staff, the SCAQMD staff has concluded that the provision was overly conservative and is no longer necessary for the protection of public health. This conclusion is based on the following: (1) the chemistry of the two component systems does not permit the release of substantial quantities of diisocyanate compounds during spraying since the chemistry is designed to completely use up all the diisocyanate during mixing of the two components; (2) field monitoring shows at distances of 15 feet and greater detectable levels of these compounds are well below established and recommended exposure thresholds; and (3) provisions in PAR 1113 preclude the use of these coatings for residential uses. Therefore, based upon currently available information the SCAQMD does not expect that the spraying of zero- or low-VOC two component IM systems containing diisocyanate compounds will result in significant adverse acute human health impacts to the public. The commentator is referred to Human Health Impacts section of Chapter 4 in the Final SEA for a further discussion of this issue.

The SCAQMD will conduct and complete a technology assessment one-year prior to the interim and final VOC content limits becoming effective. The technology assessment will evaluate the availability and feasibility of compliant coatings. Since the language regarding technology assessments is included in PAR 1113, the SCAQMD will be required to revise the VOC content limits or extend the compliance dates depending on the results of the technology assessment. This continuing evaluation requirement assures that future limits will always be based on the commercially available coating technology. Furthermore, if during the technology assessment it is determined that changes are necessary to Rule 1113, the changes will be evaluated to determine CEQA applicability and, if necessary, a CEQA analysis will be prepared.

1-3 The commentator indicates that the SCAQMD cannot assume that the end user will be able to use non-compliant IM coatings for up to three years after the VOC content limits go into effect because low-VOC compliant IM coatings have a shelf life of typically one year. The SCAQMD assumes for the purposes of this comment that the commentator is referring to the three-year sell-through provision of PAR 1113 when mentioning the ability to use non-compliant coating three years after the implementation dates. Based on the SCAQMD's research and analysis, there are currently commercially available IM, as well as other coating categories, with shelf lives up to three years. The SCAQMD can provide the commentator with the names of the companies that currently have compliant low-VOC IM coatings with shelf lives up to three years

The commentator should be aware that PAR 1113 contains a technology assessment provision whereby approximately one year prior to the interim and final compliance dates staff will perform a technology assessment of the availability of compliant coatings. If compliant IM coatings are unavailable by the completion of the technology assessment to meet the applicable limit, the SCAQMD will report back to the Governing Board as to the appropriateness of maintaining the existing VOC content limits. This continuing evaluation requirement assures that future limits will always be based on the current state of coating technology.

COMMENT LETTER #2

SOCIETY FOR PROTECTIVE COATINGS

Darren Stroud

From: Bernie Appleman [appleman@sspc.org]
Sent: Wednesday, April 21, 1999 4:03 PM
To: Darren W. Stroud
Cc: Bernie Appleman
Subject: Comments on draft SEA

SSPC: The Society for Protective Coatings
40 24th Street, 6th Floor
Pittsburgh, PA 15222-4656

April 21, 1999

South Coast Air Quality Management District
21865 E.Copley Drive
Diamond Bar, CA 91765-4182
Attn: Darren W. Stroud

Dear Mr. Stroud

Comments by SSPC on SCAQMD Draft SEA on Proposed Amended Rule 1113

General Comments
SSPC is a not for profit technical organization representing facility owners (public and private), applicators, and suppliers of materials , equipment and services. SSPC has a history of cooperating with environmental health & safety regulatory organiation to minimize the impact of coating operations on the health and welfare of the public and the work force..

SSPC's members use or supply coatings in the class defined as industrial maintenance. SSPC's comment are primarily directed at this category, although they may also be applicable to related categories such as rust preventive coatings,

2-1 Overall, we believe that the SEA did not acquire enough data (particularly field data) to support some of the conclusions regarding the impact. The analysis relied too heavily upon the unsubstantiated claims of a small number of manufacturers which may not represent the mainstream of industrial maintenance coatings technology.

Specific Comments

2-2 page 4-13 to 4-14 regarding need for more touch-up and repair work and more frequent recoating. It is stated that "staff met with numerous resin and coating manufacturers .. and also reviewed coating product data sheets.."
We believe that low VOC coatings (eg at 250 to 100g/l or less) do not have proven field performance characteristics for application or durability. Resin manufacturers rarely have long term data on coating durability as they do not work directly with the end users. Also coating product data sheets provide very little information on the long term properties of coatings. The reason coating manufacturers have not been furnishing lower VOC coating is precisely because they are not suitable for many industrial maintenance exposures and applications.

2-3 page 4-15 regarding comparison between alkyds and acrylics as binders. Water-borne acrylics have definite application limitations under conditions of low temperature and high humidity .Under these conditions, proper film coalescence is not achieved and the coating is susceptible to being washed off and a weakened film results. Therefore acrylic

1

2-3 cont.

waterborne coatings can not be used in these situations. In many instances adequate low VOC coatings are simply not available

2-4

page 4-33 regarding the potential hazard of substituting acetone for conventional solvents. We believe that because of its increased volatility, acetone may present a significant increase in fire or explosion hazard compared to conventional solvents.
The report cites interviews with several local fire departments. We believe that this level of research and analysis is inadequate to support the conclusions and there is a need for additional investigation on this issue

2-5

page 5-8 regarding alternative C.
The numbers developed in the SEA demonstrate that the impact of adopting alternative C (no reduction in VOC for industrial maintenance and rust preventive coatings in 2005) would be relatively small based on the percent of emission reduction loss.. We believe that this alternative should be seriously considered and ultimately adopted by the SCAQMD if the current analysis is accurate. We believe that over the next 5 to 8 years there may be significant advances in coatings technology for industrial maintenance coatings based on lower VOC (eg 100g/l or less). Such advances would allow the industry to reduce VOC emissions below the level estimated for 2002. However, because of the uncertainty of R&D and the enormous challenge of developing ultra low VOC coatings with acceptable application and performance properties the VOC limits proposed for of 2005 should be delayed until the technology is proven. Presently even the limits proposed in 2002 are not technologically feasible for many industrial maintenance applications.

SSPC appreciates the opportunity to submit these comments and would be willing to discuss in further detail any of the above comments.

Respectfully submitted

Bernard R. Appleman

COMMENT LETTER #2
Society for Protective Coatings
April 21, 1999

2-1 The SCAQMD conducted an exhaustive and comprehensive survey of currently available low-VOC coatings and conventional coatings. This analysis evaluated hundreds of coatings from over 40 coating manufacturers, including the largest coatings manufacturers that distribute coatings nationally as well as smaller local manufacturers. As a result, coatings were evaluated from manufacturers that are considered to be representative of AIM coating manufacturers.

The survey specifically included obtaining information on the following coating characteristics: VOC content, percent solids by volume, coverage, adhesion, durability, scrubability, pot life, shelf life, gloss and drying time. These coating characteristics were primarily obtained from coating product data sheets (see the tables in Appendix D and the related summary tables in Chapter 4). In addition, to obtaining information from the coating product data sheets, staff called manufacturers directly to obtain additional or supplemental information on coating characteristics.

Product data sheets are prepared by the coating manufacturers to provide their customers or potential clients with information regarding important characteristics of their coatings. The information contained in the product data information sheets is typically based on laboratory tests and may also include field study data. Some commentators have asserted that these product data information sheets are simply marketing tools and, therefore, insufficient, inadequate, or unreliable. Staff contends that the product data information sheets provide reliable information because this is data typically generated by the manufacturers themselves and is often the only information coating users have available to assist them in choosing products. Providing inaccurate information as a marketing tool does not make good business sense as it would alienate potential customers. Staff understands that some characteristics are described qualitatively rather than quantitatively, e.g., "excellent" versus "good" quality coatings. Other features, however, such as chemical or corrosion resistance, coverage area at a specified thickness per gallon, etc., are verifiable characteristics. Coatings customers depend on these coating characteristic descriptions to assist them with selecting coatings for their particular coating applications.

In addition to identifying and evaluating low VOC coatings, the survey of the product data information sheets also evaluated conventional coatings. The survey results, therefore, provided a side-by-side comparison of performance characteristics for both low VOC and conventional coatings based upon the information contained in the product data information sheets. The product data information sheets are considered to be good indicators of coating characteristics in light of the fact that the information provided therein was based on the manufacturers' own field tests and was readily accessible. The data sheets where used to complement the coating survey. The survey evaluated and compared various attributes for both low VOC and conventional architectural coatings, such as drying time, surface preparation, solids content, coverage and durability. These specific coating characteristics were specifically identified and evaluated in response to industry comments asserting that these characteristics are superior in conventional coatings. As a result, the industry contends that low VOC coatings will ultimately result in greater VOC emissions because they are less durable and require more coats, require more coating to cover the same surface area as conventional coatings, etc. These industry issues have been analyzed in detail in the "Air Quality" section of Chapter 4.

The SCAQMD's survey revealed that there are currently approximately 103 low-VOC IM coatings that comply with the 2002 interim compliance date and 140 that comply with the 2006 final compliance date (Table F-1). The SCAQMD has never asserted that this information demonstrates that there are compliant coatings available for every coating application. The survey demonstrates that compliant coatings for both the 2002 and 2006 VOC content limits are available for a number of coating applications. In addition to demonstrating that future compliant coatings are currently available for many applications, one of the most important points demonstrated by the survey is that there are resin technologies currently available that may be transferred to other coating categories and coating applications. Further, according to the SCAQMD's survey, many of these currently available coatings that comply with the future VOC content limits can meet desired performance characteristics as compared to conventional high-VOC coatings. Further, the Draft SEA has comprehensively evaluated the potential adverse environmental impacts associated with the implementation of PAR 1113 and has concluded that no significant adverse significant impacts are anticipated.

TABLE F-1
Currently Available Architectural Coatings that Comply with the
PAR 1113 Future Interim and Final VOC Content Limits

COATING TYPE	Current VOC Limit (gms/liter)	# of Samples	VOC Limit (gms/liter) Effective 7/1/2002	# of Samples	VOC Limit (gms/liter) Effective 7/1/2006	# of Samples
Floor Coatings	420	9	100	5	50	13
Industrial Maintenance Coatings	420	47	250	26	100	61
Non-Flat Coatings	250	10	150	29	50	16
Primers, Sealers, and Undercoaters	350	28	200	10	100	29
Quick-Dry Enamels	400	3	250	7	50	0
Quick-Dry Primers, Sealers and Undercoaters	exempt	9	200	6	100	17
Rust Preventative Coatings	400	6	no change	n/a	100	4
Stains	350	3	250	10	no change	n/a
Water-proofing Sealers	400	5	250	10	no change	n/a
Total # of Samples		**120**		**103**		**140**

A study by the National Technical System (NTS) was initiated to assess application and durability characteristics of zero-VOC, low-VOC, and high-VOC coatings. These results have been shown to be consistent with staff's own technology assessment.

The results of the study indicate that the zero-VOC IM coatings systems tested are equal and, in some cases, superior to high-VOC coatings for characteristics which include, but are not limited to, mar resistance, adhesion, abrasion resistance, corrosion protection, and some application characteristics. The NTS results also indicate that some zero-VOC nonflats, primers, sealers, and undercoaters have limited application characteristics when compared to high-VOC coatings. These include overall lower rankings for leveling, sagging, and brushing properties. Nevertheless, the results also demonstrate that there are some zero-VOC nonflats, primers, sealers, and undercoaters available with application characteristics that are generally comparable to conventional high-VOC coatings.

In addition to the laboratory results, the NTS study will continue with additional testing, including accelerated actual exposure, real time actual exposure, and actual field application characteristics. The 1998 CARB survey has also been completed. Staff plans to utilize the on-going testing results for future technology assessments.

2-2 Commentator is referred to response to comment #2-1.

2-3 Acrylic-based coatings are clearly a better coating for concrete and metal surfaces exposed to direct sunlight than alkyd-based coatings. Urethane and epoxy IM coatings, however, are the highest performing coatings recommended for use on concrete and steel.

2-4 The commentator asserts that the SCAQMD's analysis of the potential hazards impacts associated with the use of reformulated acetone-based compliant coatings is inadequate because it relies on information obtained from interviews with local fire departments and not an actual analysis of acetone's volatility as compared to other solvents. However, in making this assertion the commentator references the Public Services Impacts section of Chapter 4 in the Draft SEA not the Hazards Impact section as the commentator's assertion seems to be directed towards. Thus, it is unclear specifically what the commentator referring to. In any event, whether the commentator is referring to the Public Services Impacts, Hazards Impacts, or both sections the SCAQMD disagrees with the commentator's assertion for several reasons. First, in the context of PAR 1113, it should be noted that the use of acetone in the reformulation of compliant coatings is relatively small. Waterproofing sealers are the only affected coating categories where some amount of acetone reformulation is expected to occur. These categories constitute a very small group of coatings compared to the total coating categories impacted by PAR 1113. Acetone reformulation was considered to be the "worst-case" for the purposes of public services and hazards impacts associated with the implementation of PAR 1113. Thus, the SCAQMD's environmental impact analysis tends to overestimate the public services and hazards impacts from PAR 1113.

Second, the SCAQMD did not solely rely on information from local fire departments in analyzing the impacts associated with the use of reformulated acetone-based coatings. The SCAQMD conducted its on independent review of the flashpoint, vapor pressure, and flammable range, (e.g., the span between the lower explosive limit (LEL) and the upper explosive limit (UEL)) of acetone, currently used solvents, and replacement solvents (see Tables 3-14 and 4-7 in Final SEA). This analysis revealed that acetone in comparison with currently used solvents has comparable volatility and flammability characteristics. In addition, the SCAQMD conducted extensive environmental review of the use of acetone when it exempted acetone as a VOC in Rule 102 – Definitions of Terms (SCAQMD #950914JN, November 1995). Based on these analyses coupled with the information received from local fire departments, the SCAQMD concluded that PAR 1113 would not create significant adverse public services or hazards impacts.

Specifically, in the context of public services impacts, potential adverse impacts to fire departments can occur two ways: (1) more frequent responses; and (2) more frequent inspections. To determine whether PAR 1113 would significantly increase or alter fire department's level of service (i.e., increased responses to fires, explosions, or inspections), the SCAQMD sought their input. Feedback received from these authorities indicates that, based upon their extensive professional experience as a result of years of regulating the use and storage of flammable materials, the use of acetone will pose no greater risks than the use of existing solvents such as: MEK, toluene, butyl acetate, etc., even though acetone is slightly more flammable. Based on this input and other related information, SCAQMD staff concluded that PAR 1113 would not result in any significant impacts to public services compared to the existing situation. Thus, the commentator under estimates the importance of the input from fire departments in determining public services impacts from PAR 1113. Furthermore, the SCAQMD expects that anyone handling acetone-based coatings or any other flammable liquids will strictly adhere to the storing, dispensing, and handling requirements of these materials to lessen the danger of fire and explosion

In regards to hazard impacts, the SCAQMD also analyzed the probability of increased accidents and their consequences associated with acetone reformulation. First, the SCAQMD found that many coatings are already formulated with acetone and, therefore, are already being transported in the district. Second, many conventional coatings are formulated with other solvents that are considered as flammable as acetone (e.g., t-butyl acetate, toluene, xylene, MEK, isopropanol, butyl acetate, and isobutyl alcohol). Based upon staff review of coating product information sheets, future compliant low VOC coatings are expected to be formulated with less or non-flammable materials such as texanol, propylene glycol, etc. Consequently, it is anticipated that future compliant coatings will follow the existing trend of moving away from hazardous coating formulations to less or non-hazardous formulations.

Additionally, it is expected that an incident (i.e., spill or explosion), involving the transporting of acetone-based coatings will produce less toxic impacts than other conventional coatings containing solvents such as toluene, xylene, MEK, etc. Acetone has a higher TLV (750 ppm), PEL (750 ppm) and IDLH (20,000 ppm) compared to other conventional solvents. These high exposure limits coupled with acetone's higher vapor pressure indicate that acetone would evaporate quickly in a spill such that extended human exposure to significant levels that could cause harm are unlikely. Further, acetone is also considered to have the same or less toxic effects as other conventional solvents. As a result, even if exposure were to occur, which is highly unlikely, the human health effects would be the same or less compared with existing architectural coatings.

Information received from various fire authorities indicates that even though acetone is slightly more flammable than other conventional solvents it would be treated the same in the event of a fire or explosion because conventional solvents are also flammable. Since PAR 1113 does not increase the probability that a transport accident will occur and the fire authorities would handle this type of incident the same compared with coatings formulated with conventional solvents as with acetone-based coatings, the hazard impacts are not considered to be significant.

2-5 The SCAQMD disagrees with the commentator's assertion that the VOC emission reductions from industrial maintenance and rust preventative coatings is relatively small. As shown in Table 5-2 of the Final SEA, the industrial maintenance and rust preventative coating categories are expected to generate VOC emission reductions of approximately 6.45 tons per day, which represents almost 30 percent of the total VOC emission reductions from the proposed amendments. Considering that it is becoming more difficult to identify sources from which VOC emission reductions can be obtained, a 6.45 tons per day reduction represents a substantial amount.

The Final SEA for PAR 1113 will be provided to the Governing Board for their consideration prior to the public hearing for PAR 1113. Whether the proposed project is adopted is ultimately the Board's decision based upon the information contained in the CEQA document, the staff report, and received during the public testimony portion of the public hearing.

Based upon staff review of the product information materials for AIM coatings, there is currently a wide range of AIM coatings available that complies with the interim VOC content limits contained in PAR 1113. Further, based upon the results of the

SCAQMD's NTS study, these currently available coatings that comply with the interim and final VOC content limit requirements have comparable coating and durability characteristics compared to existing high VOC coatings. Based upon the availability of coatings and resin technologies that already comply with the interim compliance date, the 2002 compliance dates provides sufficient time to further increase the availability of coatings that comply with the interim limits.

With regard to the 2005 compliance limits, staff review of the coating product information materials indicated that there are a limited number of currently available compliant coatings. Further, there are some resin technologies available that could be used to formulate coatings that could comply with the 2005 VOC content limits. In addition, industry input indicates that research and development of new coatings where the resin technology is currently available takes approximately three to five years. Further, industry has industry indicated that if a resin technology is not currently available, research and development of new coatings takes approximately five to seven years. While it is anticipated that the previously proposed 2005 final compliance date would provide sufficient time for research and development of compliant low VOC content coatings, staff has further extended the deadline to 2006.

PAR 1113 contains a technology assessment provision whereby approximately one year prior to the interim and final compliance dates staff will perform a technology assessment of the availability of compliant coatings. If compliant coatings are unavailable by the completion of the technology assessment, staff will report back to the Board as to the appropriateness of maintaining the existing VOC content limits.

COMMENT LETTER #3

BENJAMIN MOORE & CO.

Benjamin Moore & Co. *Paints • Stains • Clear Finishes*

April 21, 1999

South Coast Air Quality Management District
Darren W. Stroud
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

Re: Notice of Completion of a Draft Subsequent Environmental Assessment
Proposed Amended Rule 1113 - Architectural Coatings

Dear Mr. Stroud:

3-1 Benjamin Moore & Co. has developed and manufactured AIM Coatings for over 115 years. Since the early fifties manufacture and distribution has been at our Commerce, CA plant where we employ over 80 people. Currently we make for sale to our 61 "licensed" private paint dealers approximately 300 different lines of paint available in an infinite breadth of color through our "color matching system" and product finishes. The current PAR1113 will outlaw over 70% of these products and will destroy our business in the South Coast and my companies reputation as a manufacturer of very high quality AIM Coatings.

3-2 The above referenced document grossly simplifies the paint business and is intentionally misleading when it comes to describing AIM Coatings categories. As a national paint company we have pleaded for uniform language relative to the USEPA AIM VOC Rule Part 59 400 to 413 when it comes to definitions, administration and labeling, while recognizing the need for a different Table of Standards (TOS) for the South Coast. Staff has not been responsive to this need. We have repeatedly voiced our objection to limits that are past the limit of current or foreseeable technology and are not enforceable by Method 24 and the Federal definition of VOC that excludes the volume of water in the calculation or test. This concern has also been virtually ignored by Staff. Finally we have requested additional deminimous specialty categories with higher limits for coatings that don't fit in the all encompassing categories with the extremely low limits as proposed by Staff. Rather than listen to these requests we have been given two new categories where, if used, we are penalized for products so positioned, specifically "floor coatings" and "rust preventative coatings".

3-3 For Staff to claim 50 g/l paints are available to meet all our customers needs on the basis of hearsay, marketing brochures, and raw material suppliers sales literature when we have 115 years of sales history to the contrary stretches the truth beyond breaking. We are not in the business of selling solvent, rather we are in the business of selling top quality paint. The trend is very much toward water based paint because of cost, health and safety and ease of use. To regulate us out of the solvent paint business using the propositions outline in this SEA document is at best unfair and false. Our customers will not pay more for product that only provides low VOC. In fact in our case our "0" VOC products discussed in the "DRAFT Staff Report ..." of 2/17/99 on page 49 have been so unsuccessful in the market place that they have been withdrawn from sale.

3-4 Finally Staff continuously asserts there are new magic ingredients that make water paint technology user friendly yet many of these materials are VOC's in themselves. We have requested exemptions for these materials on the basis of low volatility and/or lack of reactivity. This has also been categorically rejected with only an averaging carrot given in response. We can not avail ourselves of this option when the down side is a $25,000 per day fine.

We hope these concerns are addressed and the writer can be contacted at 973-252-2650 if there are any questions.

Sincerely,

Barry A. Jenkin (Regulatory Affairs)

Established 1883

COMMENT LETTER #3
Benjamin Moore & Co.
April 21, 1999

3-1 The SCAQMD has conducted a thorough technology assessment of coatings available today that comply with the proposed limits for July 1, 2002 and July 1, 2006. Based on a detailed analysis of qualitative and quantitative data, staff has concluded that coatings with equivalent performance are available for the interim and final limits. The commentator is encouraged to review the technology discussed in detail for each coating category in the Staff Report for Proposed Amended Rule 1113, as well as the comprehensive list of coatings included as Appendix D of the Subsequent Environmental Assessment.

Nonetheless, the SCAQMD has added an Averaging Provision to provide additional compliance flexibility for coating manufacturers, which allows a manufacturer to average their emissions from a long list of coating categories. This provision would allow the manufacturer to continue selling a line of coatings that may not comply with the actual VOC limit, by offsetting those emissions with sales of coatings that are below the compliance limits. Some manufacturers have recognized the potential cost savings of this flexible approach. In addition, the SCAQMD will assess, in conjunction with industry, these coatings as a part of the technology assessments to evaluate the performance. If the future technology assessments do not demonstrate adequate performance, the SCAQMD will revise the limit or further extend the deadlines prior to implementation.

The SCAQMD has incorporated industry suggestions into the Averaging Provision to provide for a simplified, flexibility option that would allow compliance with the proposed amendments with lesser socioeconomic impacts.

3-2 The SCAQMD has worked closely with USEPA and educational institutions over the past several years to identify alternative test methods for measuring the VOC content of low-VOC architectural coatings. Under a contract with USEPA, the Research Triangle Institute has developed alternative test methods to Method 24. These include a modified Method 24, a single-injection headspace analysis, a multiple headspace extraction analysis, and an automated thermal desorption (ATD) analysis. The ATD approach has provided results that were closest to the Method 24 measured values. The SCAQMD fully anticipates the development and approval of an alternative test method over the next few years, prior to implementation of VOC limits at or below 50 g/l.

Staff has analyzed the national AIM rule's categories and definitions, as well as the VOC limits. Staff believes that adding additional categories into the Table of Standards with the default 250 g/l limit will add to confusion, instead of simplifying the rule. For example, the national AIM rule has separate categories for interior and exterior nonflats, but has the same VOC limit. This does not add any simplicity to the rule, just redundancy. The current Rule 1113 – Architectural Coatings currently contains an exemption for coatings sold in containers having a capacity of one quart or less (Rule 1113(g)(1)(A)). Staff has added two coating categories, floor coatings and rust preventative coatings, consistent with the national AIM rule. However, the current and future proposed VOC limits are different than those found in the national AIM rule. Staff has adopted the national AIM rule definitions and provisions for some categories, where appropriate.

3-3 The commentator is referred to response to comment 2-1.

3-4 Staff makes no assertions regarding "magic ingredients" in water-based coatings. Staff has acknowledged in the past that even water-based coatings may contain VOCs. The important point, however, is that the primary solvent component of water-based coatings is water, not organic solvents. Water does not contribute to ozone formation as does VOC solvents.

Staff has received recommendations in the past to include exemptions for coatings formulated with solvents that are considered to have low volatility or low vapor pressure based on CARB's consumer products rule, which has a low vapor pressure exemption. According to CARB, however, its low vapor pressure exemption was initially meant for high molecular weight resins, surfactants, detergents, and paraffins/waxes commonly found in consumer products. Based on new data, CARB is proposing to delay implementation of the low vapor pressure exemption. CARB plans to evaluate how much of these new solvent mixtures that meet the LVP definition are found in consumer products and design a study to assess the fate of LVP solvents. The study is expected to occur no earlier than the end of 1999.

The low vapor pressure exemption was originally intended by CARB to be limited to consumer products where the organic compounds are washed away. These typically do not evaporate into the air. For architectural coatings, the solvents evaporate and go into the air. For that reason, CARB has not included a low vapor pressure exemption for aerosol paints.

The approved EPA test method for measuring VOC (Method 24) measures low vapor pressure compounds as VOCs. Therefore, they should not be considered exempt in architectural coatings regulations according to EPA. For this reason, a low vapor pressure exemption is not considered to be a feasible alternative.

Exemptions, or an architectural coatings rule that is based on solvent reactivity has also been discussed and considered in the past. A reactivity-based approach has also been rejected for the following reasons. As discussed in Chapter 4 of the Draft SEA, the science of VOC reactivity is still in its early stages, with more comprehensive studies being conducted to refine VOC reactivity data. Until these studies are completed, the SCAQMD agrees with the EPA that it would not be prudent to implement a control strategy for VOC emissions based principally on VOC reactivity at this time. In its 1995 Report to Congress entitled "*Study of Volatile Organic Compound Emissions From Consumer and Commercial Products*," the EPA concluded, "To be most effective, ozone control strategies ideally should be based not only on mass VOC and NOx emissions but should consider the relative photochemical reactivity of individual species, the VOC-to-NOx ratios prevalent in specific airsheds, and other factors which could work together to minimize the formation of ozone with adverse impacts. Reactivity data on VOC, especially those compounds used to formulate consumer products and commercial products, is extremely limited. Better data, which can be obtained only at great expense, is needed if the EPA is to consider relative photochemical reactivity in any VOC control strategy. In the meantime, a practical approach is to act on the basis of mass VOC emissions." Thus, until more comprehensive VOC reactivity studies are completed that yield more refined speciation profiles for architectural coatings, the SCAQMD will continue to use a mass VOC control strategy. The SCAQMD welcomes any new scientific data that industry can provide to aid the SCAQMD in making VOC reactivity-based strategy a viable control option.

In general, the relative contribution of a specific VOC under different atmospheric conditions needs to be better understood before data can be used for policy-making. Dr. William Carter recently received funding for a three million dollar ozone chamber, which will include studying VOC reactivity. The SCAQMD is also contributing funding to this ozone chamber. A working group will be established to guide reactivity research. It is expected that it will take 18 to 24 months to have the chamber running. The results of future studies may result in sufficient information to include reactivity-based control provisions in Rule 1113 and other coatings rules.

Reactivity-based regulations have also been discussed at Industry Working Group meetings (meeting #2, 10/7/98; meeting #3, 11/4/98; and meeting #4, 12/9/98). At Industry Working Group meeting #3, Dr. Carter explained that EPA does consider whether a VOC is reactive or non-reactive. EPA staff feels the high uncertainties of the MIR values would not make it a sound strategy until values are refined. EPA and private groups have established NARSTO to coordinate research related to reactivity policy.

While vehicle exhaust has been extensively studied for reactivity, it was only three years ago that glycols, esters, ketones, etc. were being studied. Uncertainty values vary for the best understood species by 30 percent for absolute reactivity and 20 percent for relative reactivity. For species that have not been studied extensively, uncertainty can be much greater. The value of the uncertainties is very difficult to isolate, but attempts to numerically identify uncertainties have been made.

Some specific problems (scientific issues) associated with reactivity-based regulations include:

- Assumptions in the current airshed models are too simplified, and do not represent airshed conditions in Basin.
- Studying the reactivity of halogenated compounds is frustrating because currently there is no way to simulate reactivity under current models and chamber conditions.
- Information on the reactivity of alcohol amines indicates that there is a high degree of uncertainty associated with the reactivity of these compounds and additional study is necessary.
- The reactivity of aromatics is still not well understood and current mechanism may not correlate well.
- Quantifying reactivity uncertainties is difficult – particularly for most compounds found in architectural coatings.
- The existing atmospheric chamber is not for studying reactivity in low-NOx environments.

NOx levels, absolute concentrations, also affect reactivity. Temperature and light intensity can also affect reactivity, but this relationship has not yet been studied. In urban areas, time and place of VOC and NOx emissions can also have effect; Absolute reactivity is scenario dependent and is more variable, whereas relative reactivity is less scenario dependent, and therefore less variable, and is the more important scale. The current scenarios represent the center of urban areas' NOx levels. The maximum incremental reactivity varies for each VOC species. Generally, under current scenarios, the VOC:NOx ratio is approximately 6.0, which is consistent with NOx levels in the downtown area of Los Angeles.

Although the above information indicates that the science regarding VOC reactivities is currently not well developed, the SCAQMD acknowledges that when the science becomes reasonably well developed a reactivity-based regulatory approach may provide an alternative or additional means to assist in making progress towards attaining and maintaining the state and national ambient air quality standards for ozone. To address potential future advances in knowledge about reactivity, the SCAQMD has added language to PAR 1113 provision (f)(3), which requires the

Executive Officer to further conduct a study to assess the reactivity of architectural coatings.

Although the averaging compliance option in PAR 1113 is one means of complying with the rule provisions, it is not anticipated to be the only means. It is expected that the interim and final compliance dates provide sufficient time for research and development of compliant coatings. This assertion is based on the current availability of low and zero VOC coatings. Staff evaluated the coating product information sheets for a substantial number of both low VOC and currently compliant conventional coatings comprising a number of AIM coating categories. This evaluation identified coating characteristics such as VOC content, drying time, pot life, shelf life, durability characteristics, etc. The products evaluated are listed in the Tables in Appendix D, which are summarized in Table 4-2 in Chapter 4 of the Final SEA. This survey of product information sheets demonstrates that for a number of AIM coating categories, compliant coatings already exist. Given the time available for research and development, the number of compliant coatings for the affected coating categories is expected to increase substantially

COMMENT LETTER #4

KESSLER & ASSOCIATES, INC.

Kessler & Associates, Inc.

April 21, 1999

Mr. Darren Stroud, Air Quality Specialist
CEQA Section of the Planning, Rule Development, and Area Sources Division
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765

Subject: Comments on Draft Subsequent Environmental Assessment for Proposed Amended Rule 1113 – *Architectural Coatings*

Dear Mr. Stroud:

Kessler & Associates, Inc., a government affairs firm, represents Dunn-Edwards Corporation (Dunn-Edwards) a Los Angeles, California-based manufacturer and se'. ;r of quality architectural coatings. This letter is in response to the South Coast Air Quality Management District's (SCAQMD's) Draft Subsequent Environmental Assessment (EA) prepared for Proposed Amended Rule 1113 – *Architectural Coatings*.

4-1 Thank you for allowing us the opportunity to comment on the potential impacts of this proposed rulemaking. We have restricted our comments to those areas of the EA where additional technical data or analyses are necessary to more accurately assess potential environmental impacts. Our comments on the Notice of Preparation have not been addressed in this document with respect to the reactivity of specific VOCs and the contribution of emissions from architectural coatings on the formation of ozone in the South Coast Air Basin.

Page 1-1 – Introduction

4-2 We have a general comment concerning the intent of this rulemaking. Rule 1113 does not regulate volatile organic compound (VOC) emissions, but rather regulates the VOC

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4-2 cont. content of architectural coatings. Regulation based on content rather than emissions assumes a direct correlation between VOC content and effect on ozone. This concept is not *a priori* correct.

Furthermore, all VOCs may not contribute equally, if at all, to ozone formation. This theme is continued throughout Chapter 4 – Air Quality Impacts.

Page 1-7 – Air Quality

4-3 The Draft EA states, "The adoption and implementation of PAR 1113 is expected to produce long-term VOC emission reductions." Whether limiting VOC content of architectural coatings actually reduces emissions and, ultimately, ozone formation is unclear by the District's analysis. District staff has indicated that current Urban Airshed Models cannot demonstrate measurable results from a source as small as the District's estimate for the entire coatings category. Therefore, implementation of the Proposed Rule may not result in a reduction in ozone formation.

Reactivity

4-4 We believe that a reactivity-based regulatory scheme will provide the District with the means of reaching and maintaining the ozone standard in a manner that is more cost-effective and equitable in its impact on the regulated community. A reactivity-based approach is consistent with the mandates of the Clean Air Act (Sections 183(e)). In addition, regulation based on VOC mass content without regard to reactivity allows the possibility of adverse environmental impacts through reformulation using ingredients that are more reactive.

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Page 1-11 and Page 4-32 – Maintenance at Public Facilities

4-5 Staff concluded that "no significant public service impacts are anticipated from the proposed rulemaking for maintenance at public facilities." In the absence of long-term testing of complying coatings used for maintenance of water treatment facilities, bridges, safety railings, fire escapes, and other essential public uses, this finding is unfounded.

Page 2-3 – Background

4-6 According to this document, "…due to the lack of durability information contained in the EMU study, the SCAQMD contracted with National Technical Systems (NTS) to conduct a comparison study that will evaluate the durability and application characteristics of …coating categories."

We must note that the environmental impacts of the Proposed Amended Rule will depend, to a large extent, on the durability and application characteristics of complying substitutes for coatings unavailable in the future due to the proposed lower limits. Insofar as the results of the NTS study are not available, the District lacks the factual basis for assessing environmental impacts, and has instead relied upon unfounded speculation and unsubstantiated competitive marketing claims.

We believe, therefore, that the Amendments to Rule 1113 and the CEQA analysis are premature, given the AQMD's inability to fully consider this crucial factor. We urge District staff to consider these results in future rulemaking efforts and in the Technology Assessments which have been added to the rule to ensure that high quality, durable coatings are available.

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Page 2-4 - Background

4-7 The term "technical assessment" as used by District staff in this document actually refers to a literature search of product data sheets and promotional articles. AQMD staff has relied on unverified claims made in marketing materials and is using this as justification for establishing future VOC limits and timelines. This is an inadequate basis for this rule. A genuine, scientific technology assessment requires extensive testing of various coatings on a variety of substrates in both interior and exterior exposures representative of conditions experienced in the South Coast Air Basin.

Page 3-19 – Strategy for Attaining the National and State Ozone Standards

4-8 Page 3-19 states, "without additional AIM regulations, the summer-day average inventory for AIM coating emissions will increase due to population growth by the following: 68.2 tons per day in 1997; 74.7 tons per day by 2005; and 79.4 tons per day by the year 2010. If left unregulated, AIM coating emissions alone would account for more than 26 percent of the VOC emissions inventory targeted for 2010."

This comment does not reflect the market-driven technological advancements that have occurred and will continue to occur, even in the absence of regulation. During the past 50 years, market forces have driven the demand for coatings with lower-VOC levels. In 1950, virtually all architectural coatings were solventborne; by 1975 (25 years later and in the absence of regulation), more than 70 percent by volume were low-VOC waterborne products. Similar market forces such as consumer preference for low-odor, health and safety concerns, and price competition operate to reduce VOC content to the lowest possible levels consistent with desired performance characteristics.

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Mr. Darren Stroud April 21, 1999 Page 5

4-8 cont. This is apparent in the recently released CARB AIM survey data. The AQMD should base the AQMP inventory on this information. The 1998 Draft CARB survey indicates a 82 percent/18 percent waterborne to solventborne split as opposed to the 1993 survey which showed 74 percent and 26 percent respectively.

Page 4-4 – Film Thickness

4-9 Viscosity data as well as solids volume date is needed to speculate on applied film thickness. However, no viscosity data is listed in this Draft EA. Averaged coverage data from data sheets is not accurate. Actual application comparisons are required. Higher volume solids are evident in averages for lower VOC floor, industrial maintenance coatings, and water proofing sealers.

Page 4-11 - More Priming

4-10 The product data sheets may indicate comparable coverage, but substrate-specific testing is required to verify claims that additional surface preparation, including priming is not required to successfully applying reformulated products.

Page 4-12 – More Topcoats

4-11 The additives cited in the EA to improve flow and leveling problems and deal with oily or contaminated surfaces are expensive and can compromise the final properties of the film. For example, they may cause water sensitivity, embrittlement, and loss of ultraviolet (UV) resistance. Actual testing is required to determine the extent to which more topcoats may be required to successfully apply reformulated products.

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Pages 4-13 – 4-14 – More Touch-Ups and Repair

4-12 The document cites the use of "hypersurfactants and reactive diluants" that have improved the overall performance of low to zero-VOC coatings to achieve "comparable" if not superior performance to traditional, solvent containing coatings. These coatings have performance limitations and their costs can be substantially higher than that for traditional coatings. Actual testing is required to determine the durability of such coatings and the extent to which additional touch-up may be necessary.

Page 4-14 – 4-15 – More Frequent Recoating

4-13 The use of UV absorbers or free radical scavengers to increase coating life can result in significant costs and can produce undesirable side effects. These products often have objectionable odors and result in coating discoloration.

Page 4-17 - More Reactivity

4-14 As mentioned in our comments above, Dunn-Edwards encourages the District to move towards a reactivity-based regulatory scheme for preventing the exceedance of the ozone standard as quickly as practicable.

This document does not discuss the negative reactivity that certain VOCs have in the atmosphere. Dr. William Carter of UCR contends that under certain conditions involving lower NOx levels or higher VOC-to-NOx ratios, VOCs actually inhibit the formation of ozone rather than contribute to it.

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Page 4-19 (bottom of page) – More Reactivity

4-15 The statement quoted from the paper entitled "Application of Reactivity Criteria to Architectural Coatings" is true only with respect to replacement of solventborne flat coatings with waterborne flat coatings. The paper cited continues to explain why reactivity is significant with regard to the "non-flat coatings category, which constitutes 23% of volume and is almost evenly divided at present between waterborne latex enamels and solventborne alkyd enamels. Considering reactivity, we may find that regulation results in the substitution of latex enamels for alkyd enamels and is environmentally counterproductive; i.e., exacerbates the ozone problem.

Page 4-20 – More Reactivity

4-16 This section references the state-of-the-art ozone chamber to be constructed at UCR We trust that future rulemaking will be based on the data collected using this reactivity chamber's data and scientific findings.. The assumption that VOCs contribute equally to the formation of ozone in the ambient air is not justified by the current science. This EA does not reference the negative reactivity that certain VOCs have in the ambient air. Dr. William Carter, noted scientist in the area of atmospheric reactivity, mentioned the role of negative VOCs in lowering ozone levels at a recent AQMD meeting regarding this rule.

Page 4-39 - Solid/Hazardous Waste Impacts

4-17 The significance criteria cited on page 4-39 indicates that a project will have significant adverse solid or hazardous waste impacts if it results in the disposal of materials that exceed the capacity of designated landfills.

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4-17 cont.

Dunn-Edwards does not concur that this is the appropriate measure of a significant solid waste impact. A more appropriate baseline, we believe, is the amount of paint, coatings, and containers currently landfilled or deposited at household hazardous waste roundups.

4-18

The discussion outlines possible increased solid waste generation due to: freeze/thaw problems, shorter shelf lives, and shorter pot life for two-component systems; however, there are other problems associated with the use of these replacement coatings which may result in increased solid waste impacts in the Basin. More gallons of waterborne coatings are needed to cover a comparable area due to their lower solids content; therefore, more containers would be manufactured, used, and, ultimately, disposed of in a landfill.

4-19

There is another significant problem associated with the use of zero-VOC latex-based systems as outlined in our meetings with District staff and national resin suppliers. Zero-VOC products do not include biocides necessary to eliminate an environment favorable to the growth of bacteria, molds, and fungi that can spoil a product batch.

Products ruined by microorganisms must be disposed of in a landfill. They are not appropriate for recycling or household hazardous waste programs. Dunn-Edwards is committed to limiting the amount of solid and hazardous waste generated in California. Our goal is not to fill landfills with paints and coatings.

4-20

Analysis of solid waste impacts from the proposed amendments to Rule 1113 should be based on an increased amount of paints and coatings deposited in landfills or attempted to be dropped off at household pickup areas, not a comparison to the total landfill capacity in the South Coast Basin area.

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Page 5-5 – Discussion of Alternatives

4-21 We do not concur with the discussion of Alternative A – The No Project Alternative. The recently released CARB survey demonstrates that VOC content reductions occur as a result of market demand and may continue in the future even in the absence of any additional rulemaking on architectural coatings.

4-22 We support an extended compliance deadline as a component of the proposed rule. We believe this would allow for additional, much-needed time to develop reliable lower-VOC products, particularly industrial maintenance, and rust preventative coatings. Additional research and development time is critical to ensure that coatings developed do not result in the potential negative air quality impacts outlined in our comments above.

Dunn-Edwards appreciates the District's efforts in examining innovative and meaningful approaches to dealing with ozone nonattainment. We look forward to working with District staff on this and other important technological issues. These issues are the keys to the viability of our industry and our mutual goal of clean air.

Sincerely yours,

Howard Berman

Howard Berman, Esq.
Senior Vice President and
Environmental Counsel

Kessler & Associates, Inc.

COMMENT LETTER #4
Kessler & Associates, inc.
April 21, 1999

4-1 The commentator's assertion that the Draft SEA for PAR 1113 did not address the reactivity of VOCs and the contribution of emissions from architectural coatings to ozone formation is untrue. Specific responses to all comments received on the NOP/IS for PAR 1113 were prepared and included in Appendix C of the Draft SEA. In addition, these topics were addressed in Chapter 4 of the Draft SEA for PAR 1113. With regard to reactivity, response to comment #1b-1 in Draft SEA Appendix C specifically responded to the commentator's comment. With regard to architectural coatings' contribution to ozone formation, this was addressed specifically in responses to comments #1-3 and #1a-1 of Appendix C of the Draft EA. When preparing responses to the commentator's comment on this issue, the response referred the commentator to the response to comment #1-3.

In addition to specific responses to NOP comments on reactivity, the Draft SEA includes an analysis regarding the issue of more reactivity in Chapter 4. The Draft SEA also includes a discussion of the VOC emissions inventory from AIM coatings, which contribute to ozone formation, in Chapter 3. Finally, Chapter 5 of the Draft EA included a discussion of why a reactivity-based project alternative was rejected as infeasible.

4-2 VOC content is a good indication of emissions, since VOCs in architectural coatings are intended to evaporate into the air. In addition, air quality modeling performed for the 1997 AQMP demonstrates not only the contribution VOC emissions make toward ambient ozone concentrations but also the need for further reducing VOC emissions to comply with the national and California ambient air quality standards. Further, ground level ozone formation is a result of complex chemical reactions involving both VOCs and NOx. VOCs react with hydroxyl radicals to form organic peroxyl radicals which subsequently react with nitric oxide (NO) to form nitrogen dioxide (NO_2). Nitrogen dioxide photo-disassociates to form NO and oxygen atoms. The oxygen atoms rapidly associate with molecular oxygen to form ozone. The amount of ozone formed is a function of the number of conversions of NO to NO_2 due to the organic "chain reactions." When VOC emissions are lowered, the number of NO-to-NO_2 conversions decrease. Discussions on the atmospheric chemistry of ozone formation can be found in the 1991 National Research Council report, "Rethinking the Ozone Problem in Urban and Regional Air Pollution." Specifically, page 116 states… "the presence of VOCs causes enhanced NO-to-NO_2 conversion and hence the production of concentrations of ozone that exceed those encountered in the clean background troposphere." Additionally, the SCAQMD's preliminary analysis indicates that additional reductions of VOC and NOx emissions beyond those included in the

AQMP will likely be necessary to meet the recently promulgated National Ambient Air Quality Standards for ozone and PM2.5.

Because of the extreme ozone nonattainment status of the South Coast Air Basin, the SCAQMD must control both NOx and VOC emissions if the area is to achieve ambient air quality standards. The AQMP for this district targets all feasible, cost-effective VOC emission reduction strategies from sources under its jurisdiction.

With regard to the comment that all VOCs may not contribute equally to ozone formation, i.e., reactivity, the commentator is referred to the response to comment #3-4.

4-3 The commentator is referred to the response to comment #4-2. In addition, architectural coatings is one of the largest remaining source category of VOC emissions.

4-4 The commentator is referred to the response to comments #3-4 and #4-1.

4-5 The commentator is referred to response to comment 2-1.

4-6 Since the initiation of the NTS study, SCAQMD staff has conducted its own technology assessment that is consistent with the results received so far from the NTS study. The commentator is also referred to response to comment 2-1.

4-7 The commentator is referred to response to comment 2-1.

4-8 The SCAQMD acknowledges that both regulation and the market have caused VOCs to be reduced. The Draft 1998 CARB survey data will be incorporated in the Category of Emission Source reports by CARB later this year. Subsequently, the SCAQMD will revise its emissions inventory for architectural coatings.

4-9 Though viscosity data may be beneficial for determining film thickness, it is difficult to evaluate since it is effected by ambient temperature and humidity. For example, a the viscosity of a coating may increase under cooler temperatures and drop under high temperatures. Thus, percent solids by volume is the most stable and reliable indicator. The commentator is also referred to response to comment #2-1.

4-10 Based upon the SCAQMD's technology assessment, the SCAQMD believes that given the lead time for reformulation the priming needs of low VOC coatings will be comparable to higher VOC solvent-borne coatings. Nevertheless, substrate-specific testing to verify priming requirements will be incorporated into future technology assessments for primers, sealers, and undercoaters.

4-11 The SCAQMD recognizes that there are tradeoffs of different coating characteristics that must be balanced for an optimal formulation. The NTS study finds that some zero-VOC coatings have better application characteristics than other zero-VOC coatings, and that some have application characteristics, including leveling, sag resistance, blister resistance, and final film properties similar to some higher-VOC coatings. This indicates that some manufacturers have been able to overcome or balance application properties with the addition of rheology modifiers and other additives.

4-12 The NTS study shows comparable durability of low to zero-VOC coatings with traditional, solvent containing coatings. The commentator is also referred to response to comment #4-11.

4-13 According to <u>Light Stabilizers for Paints</u> (Dr Andreas Valet, 1997) and "Additives for Trade Sales and Industrial Coatings" (Ciba, 1997), UV absorbers and free radical scavengers are additives which protect the structural integrity of coatings against corrosion and degradation. No data has been provided which substantiates the commentator's claim that UV absorbers or free radical scavengers cause coating discoloration and objectionable odors. Further, these coatings are used on exterior surfaces and, as such, would not be expected to result in additional adverse odor impacts.

4-14 The Draft SEA for PAR 1113 discussed the lack of information regarding a reactivity-based regulation. With regard to the comment regarding NOx-to-VOC ratios and the effect on ozone formation, the commentator is referred to the response to comment #3-4. The commentator is also referred to the response to comment #4-1.

4-15 The commentator is referred to the responses to comments #3-4 and #4-1.

4-16 With regard to VOC reactivity, including "negative reactivity" and Dr. Carter's work on VOC reactivity, the commentator is referred to the responses to comments #3-4 and #4-1. To the extent that the ozone chamber to be constructed at U.C. Riverside provides necessary and reliable information about reactivity of individual VOCs, this information will be used as appropriate in future amendments to existing coatings rules or entirely new rules. The SCAQMD supports future reactivity studies pertaining to architectural coatings.

4-17 The commentator advocates using the total amount of paint, coatings, and containers currently landfilled or deposited at hazardous waste roundups as the solid waste significance threshold instead of the total landfill capacity in the district. The SCAQMD disagrees with the commentator's proposal for several reasons. First, the SCAQMD as the lead agency has the discretion to establish its own significance thresholds for its projects (CEQA Guidelines §15064.7 (a)). Significance thresholds used by the SCAQMD are derived from a number of sources including SCAQMD rules and regulations, other lead agencies that have established significance thresholds, and Appendix G of the CEQA guidelines, which is considered indicative of public health and environmental impacts. Appendix G indicates that a project would be considered to result in a significant Utility and Service Systems impact if landfills serving the project did not have sufficient capacity to meet the project's solid waste needs. Thus, the SCAQMD's solid waste significance threshold is consistent with the total-landfill-capacity threshold approach in the CEQA Guidelines.

Second, the establishment of total-landfill-capacity significance threshold provides uniformity for all SCAQMD projects. This approach allows the SCAQMD to keep a running total of the cumulative effects of its projects since it has one threshold to measure against. To adopt the commentator's proposal would mean that the SCAQMD would have to adopt separate significance thresholds for each project. This would lead to confusion amongst the public and result in potential inconsistent application by SCAQMD staff for rule and permitting projects.

Finally, the SCAQMD has no information as to the amount of paints, coatings, or containers currently landfilled or deposited at hazardous waste roundups. The commentator has conveniently omitted this information from its comment. Without such information, the SCAQMD cannot assess the validity of whether such a threshold is suited for the SCAQMD's purposes.

4-18 The commentator alleges that the solid waste impacts analysis does not include all potential impacts associated with PAR 1113. The commentator asserts that more solid waste (e.g., disposal of containers) could be generated since more water-borne coatings are required to cover a comparable area due to their low solids content. As part of the environmental impacts analysis for PAR 1113, the SCAQMD conducted an exhaustive and comprehensive analysis of currently available low VOC coatings that forms the primary basis for PAR 1113. This analysis evaluated hundreds of coatings from approximately 40 manufacturers and considered the following coating characteristics: VOC content, percent solids by volume, coverage, adhesion, durability, pot life, shelf life, gloss, and drying time (see the tables in Appendix D and the related summary tables in Chapter 4 of the Final SEA). The analysis of resin manufacturers and coating formulators product data sheets provides the most accurate information available to the SCAQMD, which is based on qualitative and quantitative information (e.g., laboratory testing, actual product usage data, and field testing data). The SCAQMD's analysis of these product data sheets indicates that overall low-VOC compliant coatings had comparable performance characteristics to conventional coatings for both the interim and final VOC content limits.

The SCAQMD's product data sheet analysis has since been corroborated by the results from the NTS study specifically in the context of the interim VOC content limits. For the final VOC content limits, the results of the NTS study indicate that some of the compliant coatings may have some application concerns, while other zero-VOC coatings have comparable application characteristics when compared to conventional high-VOC coatings. As a result, the SCAQMD has given coating formulators seven years to reformulate their coatings to correct coating application problems. This time period is consistent with input received from resin manufacturers and coating formulators that it takes five to seven years to reformulate coatings to make it commercially available based on emerging resin technology. PAR 1113 contains a technology assessment provision whereby approximately one year prior to the interim and final compliance dates staff will perform a technology assessment of the availability of compliant coatings. If compliant coatings are unavailable by the completion of the technology assessment to meet the final limit, the SCAQMD will report back to the Governing Board as to the appropriateness of maintaining the existing VOC content limits. Accordingly, the overall the solids content and coverage area for low-VOC affected coatings are comparable to conventional coatings. Therefore, solid waste impacts resulting from alleged solids content and coverage issues are not expected from PAR 1113.

Additionally, the solid waste impacts analysis represents the "worst-case" because it assumes that five and one percent (total six percent) of all coatings as well as ten percent of all IM and floor coatings could potentially be landfilled for freeze-thaw, shelf-life, and pot-life problems. This analysis overestimates the solid waste impacts associated with PAR 1113 because it is highly unlikely that this amount of coatings would all fail at the same time and be disposed of on the same day. Therefore, even if additional solid waste were generated as alleged by the commentator, it would fall somewhere in the SCAQMD's analysis. Thus, the SCAQMD has extensively analyzed the solid waste impacts associated with PAR 1113.

Regarding the SCAQMD's review of resin manufacturer's and coating formulator's product data sheets and the preliminary results from the NTS study the commentator is referred to response to comment #2-1.

4-19 The commentator indicates that zero-VOC latex-based technology does not include biocides necessary to prevent spoilage from bacteria, molds, and fungi. As a result, the commentator alleges that spoiled paint will have to be landfilled, and thus, increasing in landfill impacts. The SCAQMD is aware that true zero-VOC technology may not contain biocides. However, the SCAQMD's proposed interim and final limits are set to allow for the addition of some VOC. For example, the final limits for nonflat paints, which are predominantly consists of latex-based technology, is set at 50 g/l. The allowance of some VOC will allow coating formulators to include rheology modifiers and biocide to spoilage as alleged by the commentator. Therefore, the

SCAQMD does not anticipate that significant solid waste impacts will be generated as a result of paint spoilage.

However, in the event there is some disposal of latex-based paint due to spoilage from bacteria, molds, and fungi, significant solid waste impacts will not occur. Since the SCAQMD's analysis overestimates the solid waste impacts associated with PAR 1113, the disposal of latex-based paints due to spoilage would fall within the range of the SCAQMD's analysis. The commentator is referred to response to comment #4-18.

4-20 The commentator is referred to response to comment #4-17.

4-21 The behavior of manufacturers in developing lower-VOC coatings and the public's acceptance of those products have occurred in conjunction with regulatory limits being placed on the products. There is no indication that the market would have moved at the same speed or to the same extent absent environmental regulations. The fact that EPA published a national AIM coatings rule in September 1998 to meet the obligations of Section 183(e) of the Clean Air Act, also indicates their position that regulations are necessary to drive the market forces. In addition, a study prepared for Inform Inc., a non-profit environmental research organization, entitled *Stirring Up Innovation: Environmental Improvements in Paints and Adhesives*, found that environmental regulation have been a strong driving force promoting innovation in the paint industry.

4-22 With regard to the need for additional time to develop compliant coatings, the commentator is referred to the response to comment #2-5.

COMMENT LETTER #5

NATIONAL PAINT & COATINGS ASSOCIATION

National Paint & Coatings Association

April 21, 1999

Mr. Darren W. Stroud
Office of Planning, Transportation and Information
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

RE: Comments on the Completed Draft Subsequent Environmental Assessment for Proposed Amended Rule (PAR) 1113 - Architectural and Industrial Maintenance (AIM) Coatings

The NPCA is providing comments on the South Coast Air Quality Management District's (SCAQMD) Completed Draft Subsequent Environmental Assessment (SEA). NPCA in December 1998 provided comments on the predecessor document – the Initial Staff Draft Subsequent Environmental Assessment.

While we acknowledge that the current proposal has increased some of the proposed limits above those proposed in the Initial Staff Draft, the underlying fundamental problems that we raised in regard to the Initial Staff Draft have not been adequately addressed in the Completed Draft document. Additionally, the Completed Draft raises some new factual issues.

I. General Comments on Completed Draft Subsequent Environmental Assessment

A. Rush to Judgment Without Adequate Information

The primary defect with the rulemaking process remains that the District is unnecessarily moving ahead on a fast track rulemaking schedule before pertinent data is made available by staff and can be adequately reviewed by industry and the District. This is essential to making an informed decision concerning the technological and economic feasibility of the proposed revised VOC limits under Rule 1113.

5-1 This pertinent data includes the National Technical System (NTS) comparative study concerning coatings performance and additional details from the CARB AIM emissions inventory, especially coatings speciation data. (Only summaries of the CARB inventory and the NTS study has been released to the public to date.) The District's fast track rulemaking schedule precludes sufficient time for a thorough examination and discussion of the results of all of the information collected in these two important data gatherings.

5-2 In this connection we note that the District has changed the date for a Board decision from February 12, 1999 to May 14, 1999. But we also note that the

coatings care

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District in its February 17 Draft Staff Report stated its expectation that it would be only a "few weeks" until the NTS study would be finished. The importance of this study to the decision making process cannot be overemphasized. The key issue for decision is not whether low VOC coatings currently exist that are below currently applicable VOC limits. They do. The issue is whether they are adequate to meet all of the performance needs for all of the coatings in their category and whether reasonable inferences for even lower VOC levels can be made based upon current coating technologies and performance characteristics. The NTS study that is to make side-by-side comparisons of performance characteristics of lower and higher VOC coatings in specific coatings categories and subcategories is therefore essential to this rulemaking. As of this writing the full study has not been released to industry.

5-2 cont.

In addition, important features of the study are being deleted in order to meet the May 14 scheduled Board decision. We now understand that this includes the elimination of field tests of the application performance characteristics of the coatings. Laboratory tests are to be substituted in their place.

5-3

In this connection it must also be noted that in general there is no substitute for field testing application, performance and durability characteristics of coatings and this is especially true in the case of the radical reformulations being recommended by staff.

Staff acknowledges the importance of this kind of information in making its determinations. For example, the Completed Draft SEA states: "Due to the lack of durability information contained [in a previous study] the SCAQMD contacted the National Technical Systems to conduct a comparison study that will evaluate the durability and application characteristics between low- and zero-VOC coatings compared with high VOC coatings." (Completed Draft SEA at page 2-3.) Undoubtedly in an effort to meet the May 14 Board decision date, staff now plans to conduct the application characteristics tests in the laboratory instead of conducting lengthier, but more reliable, field tests. Again this underlines the "rush to judgment" nature of this rulemaking for which the earliest compliance dates for proposed revised VOC limits is January 1, 2002

5-4

The failure to provide for an adequate review and comment on the full results of NTS study (originally expected by staff to be available "a few weeks" after February 17, 1999, and thus before the issuance of the Completed Draft SEA) seriously undermines the adequacy of the staff's findings in the Completed Draft SEA relating to coatings performance issues. This is particularly true with respect to the current and foreseeable coatings technologies that are considered by staff to be available or feasible in the future which staff uses to justify many of its findings of "no significant environmental impact", especially relating to air quality issues. Staff's efforts to shore up this deficiency in Chapter Four and Appendix D of the Completed Draft SEA by a partial review of coatings product

5-4 cont. data sheets that are not analyzed in terms of their specifically intended substrate and application specifications and requirements is not an adequate substitute for the full results of the NTS study. Nor is it the reasoned analysis required by CEQA.

5-5 It is the consensus of the NPCA membership that at a minimum five years would be required for coatings reformulation, field testing and development if feasible limits were proposed by the SCAQMD.

5-6 Although the proposed revisions would allow for a technology review to ascertain the "product availability" of the lower VOC coatings one year before they are to become effective, this time frame is too short to respond to with the development of effective coatings should the SCAQMD determine that the limits are feasible.

5-7 The determination also will turn upon the staff's interpretation of what it considers to be "available". We take little comfort from the staff's determinations in this document concerning what they may consider to be "available" coatings. For example, citing the 1998 CARB Survey, the staff finds "availability" of coatings in the industrial maintenance coatings category at the proposed VOC limits for 2002 when the survey shows that currently only 27% of the coatings meet the proposed 2002 level and only 11% meet the proposed 2005 limit. (Completed Draft SEA at page 3-3) The report does indicate that the coatings are available for "some applications", suggesting not all applications. But totally absent from staff's discussion of this topic is any indication that it will apply the "availability" criteria in a manner that draws distinctions among the performance characteristics and requirements of the coatings subcategories that make up the industrial maintenance coatings category. As this is not being done in the current proposed rule amendment, we have little reason to believe that it will be done in future technology assessments under the amended rule.

5-8 In any case, even if SCAQMD should determine that the VOC limits are not feasible for all coatings in a category, the standards may nonetheless become part of EPA enforceable SIP requirements that can be enforced irrespective of the SCAQMD's determination.

All of this means that the establishment in Rule 1113 of low VOC limits as being potentially feasible at some time in the future raises the very real risk that they will be imposed irrespective of whether they are ultimately proven to be technologically unfeasible. The federal enforceability of these SIP requirements further compels the conclusion that SCAQMD staff should develop realistic proposals for future limits. As will be demonstrated in our more specific comments, this has not occurred. And again this argues for delaying consideration of the proposal until information already being developed by staff is made more available for industry review.

3

B. Four General Recommendations

The gist of the four general recommendations that were made in our December 1998 comments on the Initial Staff Draft Subsequent Environmental Assessment remains the same.

5-9
- Postpone the currently scheduled May 14, 1999 presentation on the proposed revisions to Rule 1113 to the SCAQMD Board until both the NTS comparative study and the CARB inventory results are made fully available to the regulated community, which includes chemists with extensive knowledge of the paint technology issues involved in this matter, has an opportunity to review and discuss the findings of the studies with District staff.

5-10
- The NTS study should be expanded to include ongoing real world weathering and durability testing that manufacturers and applicators can monitor in the future. It should not be truncated to exclude initially planned tests such as coatings field application tests.

5-11
- The District relies for much of its proposed lower VOC coatings limits on currently available low VOC coatings technology. A low VOC product technology in a general class of coatings may be successfully used currently to meet the performance requirements of one or more application and exposure environments. However, there must first be a thorough evaluation of this technology before it can be mandated as being feasible <u>for all or even most of the application, performance, and exposure requirements of the general class of coatings to which it belongs</u>.

5-12
- The SCAQMD AIM rule should adopt the national AIM rule as a template, incorporating the national rule's product definitions, reporting and labeling requirements, as well as the national rule's "less than or equal to" one liter package size exemption. It must be acknowledged that the SCAQMD will specify lower VOC limits for coatings than those of the national rule. This may necessitate the greater division of separate coatings categories in the SCAQMD AIM rule than those that exist in the national rule. But the basic components of both rules should be as uniform as possible to reduce the inefficiencies associated with having to address the special VOC reduction needs of the SCAQMD.

II. Comments on Specific Features of the Completed Draft Subsequent Environmental Assessment

Below are our comments on specific features of the Completed Draft Subsequent Environmental Assessment.

A. Inadequate Technology Assessments Based on Product Information Sheets

Completed Draft SEA at page 2-4

5-13 *"Since the NTS study was initiated, staff continued to conduct its technology assessment of low-and zero-VOC coatings affected by the proposed amendments and has gained additional information pertaining to their performance characteristics . . . . Based on this assessment, staff believes that both the proposed compliance limits and deadlines are achievable. Staff will nevertheless reassess the deadlines based upon the laboratory results of the NTS study. These results are expected to be completed sometime in the March/April 1999 time frame."*

Comment: Staff's "analysis" of the performance characteristics of compliant products was based almost entirely, if not exclusively, on manufacturer's claims from product information sheets and with no reference to the real-life performance characteristics of the coatings and their specific end uses. Manufacturer product data sheets are often promotional in nature and based upon applying coatings in ideal conditions, e.g., thorough preparation of substrate and ideal weather conditions. Moreover, it is now April 21, 1999, and the NTS data are still not fully available for review and comment.

B. Completed Draft SEA Indicates Only VOC Limit Deadlines and Not the Limits Themselves May Change Depending on Final Results of NTS Study

Completed Draft SEA at page 3-2

5-14 *"The Eastern Michigan Study "concluded that low- and zero-VOC coatings are currently available for the proposed coating categories, but did not reach conclusions regarding the overall performance of these coatings, as compared to current solvent-based coating formulations."*

Staff will reassess the deadlines based on the laboratory results of the NTS study."

Comment: Does this second paragraph mean that staff will not reassess the proposed VOC limits based on the NTS study? If this is so than it suggests that the staff is already convinced that its recommended VOC limits are

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5-14 cont. technologically feasible and that the final results of the NTS study will not change its view.

C. Completed Draft SEA Demonstrates that Distinctions Between Different Coatings Technologies and Performance and Application Requirements Not Understood by Staff

Completed Draft SEA at pages 4-3 to 4-4

"...[T]he appellate court has already determined that six of the eight issues asserted by industry and contractors had been adequately addressed in the previously prepared CEQA document . . . . [¶] It should be noted that during the November 1996 rulemaking process, the eight issues as mentioned above were discussed in detail for flats and lacquers . . . in the Draft and Final Subsequent Environmental Assessment for the November 1996 rule amendments. In each case it was concluded that the coating manufacturers' and contractors' claims for an increase in emissions as a result of the reformulation of the low-VOC coatings were not supported by any credible or empirical evidence. The Los Angeles County Superior Court has upheld this conclusion to date."

5-15 **Comment:** These prior analyses were, with some minor exceptions, done for other products and SCAQMD does not demonstrate why these analyses would apply to the product categories at issue in this rulemaking which involves completely different products. This is an example, but not the only one, where the staff's analysis demonstrates a lack of understanding or disregard of important distinctions that exist between different coatings technologies and end user performance requirements. Elsewhere in the Completed Draft SEA, the staff dismisses concerns raised about surface preparation requirements for different coatings by stating that all coatings require surface preparation. This is a truism that avoids the key issue. The key issue here is the degree of surface preparation that is required for different coatings technologies.

D. More Thickness Discussion Demonstrates Misunderstanding of Industry's Position on Issue and SCAQMD's Continued Failure to Draw Distinctions Among Coatings Formulated for Different Performance and Application Requirements

Completed Draft SEA at pages 4-5 to 4-5 (More Thickness)

5-16 *"SCAQMD staff evaluated product data sheets for approximately 340 conventional and low-VOC coatings to compare solids content . . . . Staff has asserted in the past and continues to maintain that a coating with more solids will actually cover a greater surface area. . . . . [¶] These results indicate that currently available low-VOC coatings are not necessarily formulated with a higher solids content. Further, a higher solids content does not result in a*

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significant reduction in the coverage area. The information from the coating product data sheets tends to corroborate a positive correlation between solids content and the coverage area."

5-16 cont. **Comment:** Coatings are developed to be applied with different mil thickness to meet their particular performance requirements. To make valid comparisons on this score, high and low VOC coatings formulated for particular performance requirements must be compared with each other. It is clear that this was not done by staff. It is also clear that staff did not actually test the surface area coverage for zero-, low-, and high-VOC products. For some applications, no such products exist. Also, the results are *averaged* by VOC content, not by products with similar performance characteristics, which does not allow for a reasoned analysis of comparable products. In order to conclude that the proposed VOC levels would not result in increase thickness, and potentially increased emissions, it is incumbent upon SCAQMD to present data showing that information.

E. Thinning Discussion Ducks the Key Issue -- Whether There Will Be Increased Thinning When the Proposed Lower VOC Limits Become Effective

Completed Draft SEA pages 4-8 to 4-11 (Illegal Thinning)

"Thinning should not be a problem because compliant coatings are available that may be applied without thinning. Even if some thinning occurs, thinning would likely be done with water or exempt solvents. Finally, current practice indicates that coating applicators do not engage in widespread thinning, and even when thinning occurs, the coatings VOC content limits are not exceeded. As a result, claims of thinning resulting in significant adverse air quality impacts are unfounded."

5-17

Comment: Staff's conclusions regarding thinning do not constitute an adequate discussion of this issue. Current thinning practice of contractors which now can use coatings with higher VOC levels not requiring additional thinning to be effectively used -- 420 grams per liter in the case of industrial maintenance coatings-- is not relevant to predicting what will occur when the level is dropped to 250 grams per litter and 100 grams per liter and application becomes difficult without additional thinning. The assumption that compliant coatings that require no thinning at the proposed VOC limits will be available assumes away the issue entirely -- it does not address it. The same is true of the statement that if thinning occurs it will likely involve only water or exempt solvents. Exempt solvents are not uniformly suited for all the coatings at issue here.

F. Rejection of No Additional Priming Argument

5-18 Completed Draft SEA pages 4-11 to 4-12 (More Priming)

7

"Information from the coating product data sheets indicated that low-VOC coatings do not require substantially different surface preparation than conventional coatings. According to the product data sheets, conventional and low-VOC coatings required similar measures for the preparation of the surface (i.e., apply to clean, dry surfaces), and application of the coatings (i.e. brush, roller or spray). Both low-VOC coatings and conventional coatings for both architectural and industrial maintenance applications have demonstrated the ability to adhere to a variety of surfaces."

5-18 cont.

Comment: Staff's "analysis" of the performance characteristics of compliant products was based almost entirely, if not exclusively, on manufacturer's claims from product information sheets and with no reference to the real-life performance characteristics of the coatings and their specific end uses. As was noted in point D above, to make valid comparisons, high and low VOC coatings formulated for particular end user requirements must be compared with each other. It is clear that this was not done by staff.

5-19

Additionally, there was no response to the industry assertion that water-borne sealers do not penetrate and seal porous substances like wood as well as traditional solvent-borne sealers.

G. More Conclusions Based on Product Data Sheets

5-20

Comment: As with paragraph A, above, staff's "analysis" of the performance characteristics of compliant products in the following cases was based almost entirely, if not exclusively, on manufacturer's claims from product information sheets and with no reference to the real-life perfomance characteristics of the coatings and their specific end uses.

Completed Draft SEA pages 4-12 to 4-13

(More Topcoats)"According to the product data sheets for the sampled coatings, water-borne coatings have proven durability qualities."

Completed Draft SEA pages 4-13 to 4-14

(More Touch-Ups and Repair Work) "based on the durability characteristics information contained in the product data sheets, low-VOC coatings and conventional coatings have comparable durability characteristics."

5-21

Completed Draft SEA pages 4-14 to 4-16

(More Frequent Recoating) "Coatings manufacturers' own data sheets show that the low-VOC coatings for both architectural and industrial maintenance applications are durable and long lasting."

8

5-21 cont. **Comment:** Here SCAQMD also relied upon data from the Eastern Michigan study which "emphasizes the superior durability of acrylic coatings" over alkyd coatings. Yet, there is nothing but speculation to support the implied conclusion that acrylic coatings will be available for all of the applications covered by the current proposed rule amendments.

5-22 Completed Draft SEA pages 4-16 to 4-17

(Substitution)"based on staff research of resin manufacturers' and coatings formulators' product data sheets, there are, generally, a substantial number of low-VOC coatings that are currently available, that have performance characteristics comparable to conventional coatings . . . . Second, PAR 1113 prohibits the application of certain coatings in specified settings. . . . . Third, the type of performance (e.g., durability) desired in some settings would prohibit the use of certain coatings. For example, in an IM setting a coating with a life of 10 years or more is typically desired due to the harshness of the environment. Therefore, it is unlikely that a rust preventative coating with a typical life of five years would be used in place of an IM coating. Fourth, PAR 1113 requires that when a coating can be used in more than one coating category the lower limit of the two categories is applicable. . . . Lastly, SCQAMD enforcement records reveal that there is greater than 99 percent compliance rate with Rule 1113. Thus, it is highly unlikely that coating applicators will violate Rule 1113 by substituting higher-VOC coatings for lower-VOC coatings.

Comment: Second point - 1113 does not prevent all coatings from being used by contractors outside of their compliance category.

5-23 Third point – if a product is not available that would last 10 years, why would the contractor not use a product that will work, if only for 5 years, and only give a warranty for that long? The alternative is a product that won't work at all if no compliant product is available. This analysis is a non-sequitur.

5-24 Fourth point - theoretically, any coating "could" be used in another category if there is no restriction on the contractor. Section 1113(c)(3) only applies if a dual-use representation is made "anywhere on the container . . . on any sticker or label affixed thereto, or in any sales or advertising literature." It does not apply to contractor substitution.

5-25 Fifth point - compliance with today's limits is a poor predictor of compliance with the future limits, and an inadequate analysis under CEQA. The Los Angeles Superior Court in 1990 rejected SCAQMD's conclusion that thinning would not occur because it was "illegal" as an inadequate analysis under CEQA.

H. Water Demand Impact Analysis Inadequate

9

Completed Draft SEA pages 4-27

(Water Demand Impacts) "The SCAQMD staff will conduct a technical assessment one year prior to each of the rule limit requirements to determine where the technology is at that time and what, if any, environmental issues are associated with the manufacture and use of such reformulated products."

5-26 This statement is made in the section regarding Water Demand Impacts. It is unclear whether staff proposes to review all environmental impacts associated with the future rule limits, or just water demand impacts. Furthermore, it is unclear whether staff is committing SCAQMD to a formal environmental assessment such as the current process. NPCA strongly urges that SCAQMD commit to a rigorous environmental assessment at the time of technology assessments undertaken under Rule 1113.

I. Water Quality Impact Analysis Inadequate

Completed Draft SEA pages 4-28

5-27 *(Water Quality Impacts) "A research report released in March of 1977 demonstrated that latex (nonflat technology) paint is, in fact, not a hazardous waste product."*

The NPCA agrees with this conclusion. Unfortunately there are authorities in the California hazardous waste program that do not share this view and this practical fact and its impact should be analyzed by the staff.

J. Acetone Flammability Analysis Inadequate

Completed Draft SEA pages 4-33 to 4-36

(Public Services Impacts—Fire Departments) Acetone Flammability.

Staff's discussion of the flammability aspects of acetone flammability issues is a repeat of the discussion advanced in the FSEA for the November 1996 amendment to the lacquer VOC limits. The same lack of analysis required by

5-28 CEQA applies to these proposed amendments.

The opinions received from the fire department authorities, and upon which SCAQMD exclusively relied, were only abstract statements as to the relative risks of fire hazards presented by acetone and other solvents. Significantly, SCAQMD omitted discussion of the effect of vapor pressure. None of the information from the fire authorities addressed the issue of acetone's significantly higher vapor pressure, and the fact that there would be significantly higher concentrations of acetone in the air, and able to ignite, than other solvents used in the same amount. SCAQMD recognized that acetone had a higher

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5-28 cont.

evaporation rate than other solvents. Yet, it simply failed to acknowledge this higher evaporation rate in addressing the hazard impacts from the substitution of acetone for other solvents. SCAQMD completely failed to respond to comments about the fire hazards posed by acetone-containing lacquers as actually used on the job site, and that failure violates CEQA.

5-29

The DSEA relies upon the opinion of Captain Lee of the Los Angeles County Fire Department. In a letter of June 12, Captain Lee noted that "acetone presents the highest degree of fire hazard of the four solvents, but is not significantly more hazardous than the others." His analysis was expressly based on the Uniform Fire Code (UFC), which treats all of the solvents as "Class I Flammable Liquids." Similar information was given on a June 3, 1996, site visit to a Los Angeles County Fire Station. 20 AR 5545. At a May 30, 1996, meeting with the Diamond Bar Fire Department, Captain Horton said that his agency would handle all products with flashpoint below 65 degrees the same. 20 AR 5578. The Costa Mesa Fire Department also said that they would handle all Class I substances the same. 20 AR 5579. The Orange County Fire Authority also said that, based on the UFC classifications, acetone would not pose any greater danger. 20 AR 5581.

All of the opinions from the fire authorities are based on the UFC, which designates acetone and the solvents it replaces as Class I substances. The UFC's classifications are derived from the NFPA 704 Standard for Identification of the Fire Hazards for Materials. "As originally conceived, the purpose of the standard is to safeguard the lives of those individuals who may be concerned with fires occurring in an industrial plant or storage location where the fire hazards of materials may not be readily apparent." Id. The standard is addressed to "the health, flammability, reactivity, and related hazards that may be presented by short-term, acute exposure to a material during handling under conditions of fire, spill, or similar emergencies." Id. (emphasis added). "This standard provides a simple, readily recognized, easily understood system of markings that provides a general idea of the hazards of a material and the severity of these hazards as they relate to handling, fire prevention, exposure, and control." Id. "This system is intended to provide basic information to fire fighting, emergency, and other personnel, enabling them to more easily decide whether to evacuate the area or to commence emergency control procedures. It is also intended to provide them with information to assist in selecting fire fighting tactics and emergency procedures." Id. (emphasis added).

It is clear from the description of the NFPA Standard classifications contained in the UFC that they simply have nothing to do with the potential hazards from the use of coatings in the field. Nothing in the administrative record for the 1996 amendments demonstrates why it was reasonable for SCAQMD to rely upon this classification system to address the question of hazards posed by the field use of lacquers. As the industry comments pointed out, acetone has a very low

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5-29 cont.

flashpoint (flashpoint being defined as "the minimum temperature at which a liquid gives off vapors in sufficient concentration to form an ignitable mixture with air . . . ."). Its vapor pressure, i.e., how readily it will evaporate from an applied coating, is much greater than the solvents SCAQMD intends it to replace. It has a greater flammable range than any of these other solvents. The opinions of the fire authorities, based exclusively on the UFC classifications, do not address the relative fire hazard of acetone, compared to other solvents, in lacquers being used by painters in the field. These opinions were not direct evidence of no significant fire hazard from the use of acetone, and are a totally impermissible basis from which SCAQMD could reach an inference that was consistent with its prejudgment of the issue.

K. Solid/Hazardous Waste Impacts Analysis Inadequate

5-30

Completed Draft SEA pages 4-40

(Solid/Hazardous Waste Impacts) *"even if some compliant coatings are landfilled due to freeze-thaw, shelf life, or pot life problems, the total amount of solid waste material deposited in district landfills will not create a significant solid waste impact."*

First, it is interesting to note that total disposal is estimated at between 28-52 tons per day; the estimated air emissions reductions are only 20 tons per day. If the emissions reductions are significant, why are the disposal increases not?

Second, see paragraph I above regarding latex waste disposal.

L. Hazard Impacts Analysis Inadequate

5-31

Completed Draft SEA pages 4-42 to 4-43

See discussion above regarding acetone flammability.

See discussion above regarding water quality impacts.

M. Chapter 5 (Alternatives)

5-32

As is noted in our summary recommendations above, staff should utilize the coatings categories specified in the national AIM rule, and develop VOC limits based on rational distinctions between coatings categories. This alternative should be analyzed for its potential environmental effects, so that the Board may make a reasoned decision as to the feasibility of the project and the proposed alternatives in light of all information currently available.

5-33

We agree with the District's findings that reactivity-based alternative may not be a feasible alternative **at this time**. But we believe current research that is

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5-33 cont. underway may provide data that will allow the District and the California Air Resources Board (CARB) to implement a reactivity-based alternative compliance policy in the future. This is one of the reasons why we are urging the District to expand the Technology Assessment Provision [Paragraph (f)] of the rule to consider " any new scientific knowledge concerning the environmental fate and availability of VOC compounds used in architectural coatings, including any new atmospheric chamber studies and modeling techniques."

5-34 The District also should support research into environmental fate and atmospheric availability of the VOC species that are utilized in architectural coatings. There have been some interesting developments lately in this area under a Design for the Environment (DFE) program of the US Environmental Protection Agency. The developments strongly suggest that a significant amount of VOCs associated with residential coatings may be trapped in their substrate and not emitted. This research also may prove to be useful in determining the true degree to which VOCs contained in AIM coatings contribute to the VOC emissions that must be reduced in the SCAQMD basin to meet air quality standards.

5-35 We also request that staff consider an alternative in lieu of the proposed 2005 VOC limits that would establish an industry increments of progress program. Under such a program industry would demonstrate to the District its progress in developing lower VOC AIM coatings across the full spectrum of AIM coatings to achieve the needed VOC emissions reductions. Such an approach would be far more realistic and practical than the arbitrary selection of low VOC limits for individual coatings categories that are not within the reasonably foreseeable coatings technology.

III. Proposed Amended Rule 1113 - Response to Specific Proposed Amendments:

5-36 <u>Addition of a definition for "Floor Coatings" [Paragraph (b)(16)]:</u>

The definition should be revised to read as follows:

> ***FLOOR COATINGS*** *are <u>opaque</u> coatings that are formulated for application to flooring, including but not limited to decks, porches, gymnasiums for purposes of abrasion resistance.*

5-37 <u>Addition of a definition for "High Temperature Industrial Maintenance Coatings" [Paragraph (b)(20)]:</u>

The NPCA supports the addition of the new definition for "high temperature maintenance coatings" as it appears in the Proposed Amended Rule in

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5-37 cont. Appendix A of the Completed Draft SEA and the proposed VOC limit of 550 g/l. This change recognizes the true realities concerning the current state of formulation technology for these unique coatings products.

Revision of the definition of "Industrial Maintenance Primers and Topcoats [Paragraph (b)(21)]:

5-38 The NPCA supports the use of the definition as proposed in the Draft Staff Report (page 102) of the February 25 1999 version of the proposed rule with one important modification -- that a separate category be established for " Industrial Maintenance Primers, Sealers and Undercoaters". This is a clarification of our position that was stated in our comments on the Draft Staff Report that were submitted on April 15, 1999.

The current definition for Industrial Maintenance Coatings should be replaced with the following definitions:

***INDUSTRIAL MAINTENACE COATINGS** are intermediate coatings and topcoats formulated for and applied to substrates that are exposed to one or more of the following extreme environmental conditions in industrial, commercial, or institutional facilities:*

(A) immersion in water, wastewater, or chemical solutions (aqueous and non-aqueous), or chronic exposure of interior surfaces to moisture condensation;

5-39 *(B) acute or chronic exposure to corrosive, caustic or acidic agents, or to chemical fumes, chemical mixtures, or solutions;*

(C) repeated exposure to temperatures in excess of 250 degrees Fahrenheit;

(D) repeated heavy abrasion, including mechanical wear and repeated scrubbing with industrial solvents, cleaners, or scouring agents; or

(E) exterior exposure of metal structures.

Industrial Maintenance Coatings are not for residential use or for use in areas of industrial, commercial, or institutional facilities not exposed to such extreme environmental conditions, such as office space and meeting rooms.

***INDUSTRIAL MAINTENANCE PRIMERS, SEALERS, AND UNDERCOATERS** are primers, sealers and undercoaters that are an integral part of an industrial maintenance coatings system formulated for*

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and applied to substrates that are exposed to one or more of the following extreme environmental conditions in industrial, commercial, or institutional facilities:

(A) immersion in water, wastewater, or chemical solutions (aqueous and non-aqueous), or chronic exposure of interior surfaces to moisture condensation;

5-39 cont.

(B) acute or chronic exposure to corrosive, caustic or acidic agents, or to chemical fumes, chemical mixtures, or solutions;

(C) repeated exposure to temperatures in excess of 250 degrees Fahrenheit;

(D) repeated heavy abrasion, including mechanical wear and repeated scrubbing with industrial solvents, cleaners, or scouring agents; or

(E) exterior exposure of metal structures.

Addition of a definition for "Non-Flat Coatings" [Paragraph (b)]:

5-40

The NPCA supports the addition of the new category and definition for "non-flat" coatings. The NPCA (as stated in previous comments submitted on January 5, 1999, March 2, 1999 and April 15, 1999) recommends that at a minimum at least one subcategory for "High Gloss Non-Flat Coatings" be added to the proposed Table of Standards.

We also would like to point out that the "non-flat coatings" category is not a "specialty" category of AIM coatings but one that makes up over 25% of the AIM coatings sales at both the national and California levels.

Addition of the definition of "Rust Preventative Coating" [Paragraph (b)(36)]:

5-41

As stated in our comments of April 15, 1999, the definition for "rust preventative coatings" should be revised to read as follows:

***RUST PREVENTATIVE COATINGS** are coatings formulated for use in preventing the corrosion of metal surfaces in residentiel, institutional, and commercial situations.*

5-42

Revision of the definition for of Waterproofing Sealers [Paragraph (b)(49) and addition of the of a definition for Waterproofing Concrete/Masonry Sealers [Paragraph (b)(51)]:

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5-42 cont.

As stated in our comments of April 15, 1999, we support the splitting of the "Waterproofing Sealers category into two categories: "Waterproofing Concrete/Masonry Sealers" and "Waterproofing Wood Sealers" as long as the definition for the "Waterproofing Wood Sealers" is 1) modified to reflect the national definition and 2) has a VOC limit that reflects the current state of the technology for this category of coatings that provide protection with a single coating application. The definition of "Waterproofing Concrete/Masonry Sealers is acceptable as currently written.

VOC Limits and Deadline Dates

5-43

We are not including any recommendations on specific VOC limits in our comments to the District. We will continue to reserve commenting on specific VOC limits until after industry has had an opportunity to review the NTS study data and any other data that the District is relying on to determine the new VOC limits, including speciation data from the CARB inventory.

As to the proposed effective dates of January 1, 2002 and January 1, 2005, we believe that the earliest date for the first round of revisions should be no earlier than five years from the date of adoption.

5-44

Additionally this should be done only after the expanded Technical Assessment (which we proposed in our comment of April 15, 1999) has been completed and the results reviewed with industry at least a year before limits are established. That it requires a minimum of five years to develop and introduce a new coatings technology is well supported by ample testimony from coating manufacturers, raw material suppliers and coatings applicators.

5-45

As noted earlier in our discussion of Alternatives, for the second round of reductions, we believe that the VOC limits should not be set individual coatings category. As an alternative, a performance oriented hard target for overall emissions reductions for all AIM coatings could be set. An expanded technology assessment that would consider technology advances for all categories of AIM products would be undertaken. This could include increments of progress reports from industry. While this option has not been openly discussed by all the regulated parties, it clearly offers a more practical and realistic approach than the arbitrary establishment of VOC that are not within reasonably foreseeable technology developments.

Labels for "Industrial Maintenance Coatings" [Paragraph (d)(5)]:

5-46

The required label statement for "Industrial Maintenance coatings" should be revised to include all four of the options that are allowed in the national AIM

5-46 cont. regulation (40CFR Part 59.405 (b) Container labeling requirements) not limited to just the one statement from in the proposed revision of Rule 1113.

5-47 **Spray Application of two component polyurethane Industrial Maintenance Coatings [Paragraph (d)(8)]:**

We endorse the recommendation made by the PDCA in its comments of April 1, 1999 and urge the District to remove this provision.

Robert J. Nelson
Director of Environmental Affairs

Jim Sell
Senior Counsel

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COMMENT LETTER #5
National Paint & Coatings Association
April 21, 1999

5-1 The commentator is referred to response to comment #2-1.

5-2 Since the initiation of the NTS study, staff has conducted its own technology assessment, which concludes that low-VOC coatings are available. Results form the NTS study are consistent with staff's assessment. The commentator is also referred to responses to comments #1-1 and #2-1.

5-3 In addition to the laboratory testing, the NTS study will continue with additional testing, including accelerated actual exposure, real time actual exposure, and actual application characteristics. Staff never intended to delay rulemaking to await results from the field studies that could take up to several years of results. Staff plans to utilize the on-going filed testing results for future technology assessments.

5-4 The commentator is referred to responses to comments #1-1 and #2-1.

5-5 The SCAQMD believes all the proposed limits are feasible, and has further extended the time for development of compliant coatings. The commentator is referred to responses to comments #1-1 and #2-1.

5-6 The SCAQMD's experience with rule development indicates that the proposed timing of the technical assessments provides adequate time to revise the rule if necessary.

5-7 As noted in response to comment #2-1, availability refers not only to coatings complying with future VOC content limits, but also includes coating characteristics such as coverage area, corrosion resistance, etc. The NTS study also shows that some low- and zero-VOC coatings have performance characteristics comparable to, and in some cases superior to, conventional high VOC coatings. Both the staff survey and the NTS study evaluated industrial maintenance coatings. In response to industry, staff has proposed subcategories of coatings under industrial maintenance. Since staff has identified future compliant coatings and their performance characteristics as part of the current Rule 1113 amendment process and has responded to industry concerns, there is no reason to believe that a similar process will not occur as part of future technology assessments for Rule 1113. For additional information, the commentator is referred to the response to comment #2-1.

5-8 The issue raised by the commentator, i.e., relaxation of rule requirements contained in an approved State Implementation Plan (SIP), is referred to as a SIP gap because it creates a gap in terms of emission reductions anticipated in the SIP and the actual emissions that can feasibly be attained. This issue has arisen in the past so the SCAQMD has established a working relationship with the U.S. EPA to resolve SIP gap issues. For example, in the most recent Rule 1113 amendment, EPA committed to expeditiously resolving any issues regarding a SIP gap.

5-9 The initial results of the CARB inventory has been made available since March 1999. In addition, the NTS study was designed and run at the outset with industry oversight. The results so far are consistent with staff's own assessment. The commentator is also referred to response to comment #2-1.

5-10 The commentator is referred to response to comment #5-3.

5-11 The commentator asserts that all though a coating may perform adequately for some applications it may not perform as well in other applications. The commentator advocates that the SCAQMD thoroughly evaluate all affected coatings for all or even most applications before moving forward with PAR 1113. The SCAQMD has thoroughly analyzed the performance of coating categories affected by PAR 1113. The SCAQMD has found through its investigation that there are commercially available compliant coatings that meet the interim and final VOC content limits of PAR 1113 (see Table 3-1 in Chapter 3 of the Final SEA). According to the product data sheets analyzed by the SCAQMD, many of these compliant coatings perform comparable to conventional coatings in a variety of applications (see Appendix D and summary tables in Chapter 4 of the Final SEA). Furthermore, the results from the NTS study shows that some coatings complying with the interim and final limits perform as well as conventional high-VOC coatings, while some compliant final coatings have application shortcomings compared to conventional high-VOC coatings.

However, the SCAQMD acknowledges the fact that additional time for research and development may be needed to develop low-VOC compliant products that exhibit more enhanced performance characteristics. Therefore, the PAR 1113 contains an extended compliance schedule to ensure adequate time for research and development needs. In the context of the interim VOC content limits, PAR 1113 would allow an additional three years for coating formulators to develop coatings to meet the desired end users' performance requirements. This is consistent with the information provided by coating formulators and resin manufacturers that it typically takes three to five years to meet end users' performance requirements once resin technology is available. Based on SCAQMD research and investigation, resin technology currently exists to meet the interim compliance limits (as illustrated by the 1998 CARB Survey and summarized in Table 3-1 of this SEA).

In the context of the final VOC content limits, PAR 1113 would allow an additional seven years for coating formulators to develop coatings to meet the desired end users' performance requirements. This is consistent with the information provided by coating formulators and resin manufacturers that it typically takes five to seven years to develop resin technology that will meet end users' performance requirements. Although SCAQMD investigation indicates that resin technology currently exists that can meet the final VOC content limits, the SCAQMD acknowledges that some additional research and development is required before the technology can meet all of end users' requirements.

The SCAQMD will conduct and complete one-year prior to the interim and final VOC content limits going into effect a technology assessment. The technology assessment will further confirm the availability and feasibility of compliant coatings. Since the language regarding technology assessments is included in PAR 1113, the SCAQMD will be required to revise the VOC limits or extend the compliance dates depending on the results of the technology assessment. This continuing evaluation requirement assures that future limits will always be based on the current state of coating technology.

5-12 Staff has analyzed the national AIM rule's categories and definitions, as well as the VOC limits. Staff believes that additional categories in the Table of Standards with the default 250 g/l limit will add to confusion, instead of simplifying the rule. For example, the national AIM rule has separate categories for interior and exterior nonflats, but has the same VOC limit. This does not add any simplicity to the rule, just redundancy. The current Rule 1113 – Architectural Coatings currently contains an exemption for coatings sold in containers having a capacity of one quart or less (Rule 1113(g)(1)(A)). Staff has created two new coating categories: floor coatings and rust preventative coatings. However, the current and future proposed VOC limits are different than those found in the national AIM rule. Staff has adopted the national AIM rule definitions and provisions for some categories, where appropriate.

5-13 The commentator is referred to response to comment #2-1.

5-14 Staff of course will also reassess VOC limits if necessary. The commentator is also referred to response to comment #2-1.

5-15 The commentator is referred to responses to comments #4-11 and #5-11.

5-16 The commentator is referred to response to comment #2-1.

5-17 The commentator contends that current thinning practices of contractors which can now use higher-VOC coatings is not relevant to future thinning practices associated with the use of low-VOC compliant coatings. The commentator also states that using this approach constitutes an inadequate analysis and assumes away the issue. The SCAQMD strongly disagrees with the commentator's assertions for several reasons. First, the analysis of current thinning practices disputes industry's contention made in 1990 that illegal thinning occurred on a widespread basis. Current thinning practices suggest that application s follow manufacturers recommended practice regarding thinning and do not thin in excess of rule limits. Thus, if excessive thinning practices do not currently exist coupled with the commercial availability of compliant coatings to meet future limits, then excessive thinning is not likely to occur in the future. The SCAQMD has found this later scenario to be applicable for PAR 1113.

Second, the SCAQMD's field investigations of actual painting sites in the South Coast Basin and CARB's investigation of other areas in California that have VOC limits for coatings indicate that thinning of coatings exists but rarely beyond the actual compliance limits. Even in cases where thinning does occur, it is rarer still for paints to be thinned to levels that would exceed applicable VOC content limits. The result of the SCAQMD's investigations is that widespread thinning does not occur often; when it does occur, it is unlikely to occur at a level that would lead to a substantial emissions increase when compared with emissions from higher VOC coatings. Further, manufacturers that recommend thinning of their coatings give specific directions on their paint can labels as to the amount of thinner that can added without exceeding the Rule 1113 VOC content limit.

Third, throughout the development of PAR 1113 and during the 1996 rule making effort for Rule 1113 the SCAQMD requested that industry provide any thinning studies that they may have conducted to support their contentions about excessive thinning practices. To date, the SCAQMD has received no countervailing thinning studies from industry to indicate that thinning is occurring to a greater extent than the above data would indicate.

Fourth, the SCAQMD has conducted an exhaustive and comprehensive analysis of currently available low VOC coatings as well as conventional coatings. This analysis evaluated hundreds of coatings from approximately 40 manufacturers and considered the following coating characteristics: VOC content, percent solids by volume, coverage, adhesion, durability, pot life, shelf life, gloss, and drying time (see tables in Appendix D and Chapter 4 of the Final SEA). The industry's product data sheets provide the most accurate information that is based on qualitative and quantitative information (e.g., laboratory testing, actual product usage data, and field testing data). This analysis showed that low-VOC compliant coatings are commercially available with comparable performance characteristics that can meet the interim and final VOC content limits.

The SCAQMD product data sheet analysis has since been corroborated by the NTS study specifically in the context of the interim VOC content limits. The results of the NTS study indicate, however, that some of the coatings compliant with the final VOC content limits may have some application issues. As a result, the SCAQMD has given coating formulators seven years to reformulate their coatings to correct any coating application issues. This time period is consistent with input received from resin manufacturers and coating formulators that it takes five to seven years to reformulate coatings to make it commercially available based on emerging resin technology. PAR 1113 contains a technology assessment provision whereby approximately one year prior to the interim and final compliance dates staff will perform a technology assessment of the availability of compliant coatings. If compliant coatings are unavailable by the completion of the technology assessment to meet the final limit, the SCAQMD will report back to the Governing Board as to the appropriateness of maintaining or delaying the existing VOC content limits.

Lastly, the Draft and Final SEA fully complies with CEQA as it contains an extensive discussion of the potential for thinning as it could relate to air quality impacts as required by the 1990 court order. Accordingly, the SCAQMD has concluded based on its thorough analysis of this issue that significant air quality impacts will not result from thinning practices associated with the implementation of PAR 1113.

The commentator is referred to response to comment #2-1 regarding the SCAQMD's review of resin manufacturer's and coating formulator's product data sheets and the results from the NTS study.

5-18 The commentator is referred to response to comment #2-1.

5-19 The SCAQMD has reviewed numerous product data sheets for primers, sealers, and undercoaters that have good adhesion to a variety of substrates. These include adhesion over weathered alkyds. These products have specific surface preparation requirements that must be followed to achieve optimal performance. Further, the NTS study has shown that the zero-VOC coatings actually have better dry adhesion than their higher-VOC counterparts.

The SCAQMD, however, has raised the interim and final limits, as well extended the compliance dates for primers, sealers, and undercoaters based on comments provided by industry. The initial proposal required an interim limit of 100 g/l and a final limit of 50 g/l. However, these have been raised to 200 g/l and 100 g/l, effective July 1, 2002 and July 1, 2006, respectively. Furthermore, a manufacturer can use the flexibility of the Averaging Provision to maintain their lines of noncompliant coatings, by offsetting with supercompliant coatings. Finally, in response to comments received regarding concrete protective coatings, the SCAQMD has created a new category called Waterproofing Concrete/Masonry Sealers, which was a direct results of concerns for waterproofing concrete substrates, especially vertical surfaces. This new category includes both pigmented and clear concrete waterproofing sealers.

5-20 The commentator is referred to response to comment #2-1.

5-21 Acrylic coatings are currently available for a variety of categories, including stains, PSUs, nonflats, waterproofing wood sealers, floor, and IM coatings.

5-22 The commentator asserts that PAR 1113 does not prevent contractors from using coatings outside their compliance category. The SCAQMD assumes that the commentator is alleging that the rule language of PAR 1113 does not specifically prevent substitution. The SCAQMD disagrees with commentator because PAR 1113 does contain language that discourages substitution. First, it should be noted that PAR 1113 applies not only to contractors but anyone who supplies, sells, offers for sale, applies, solicits the application of, or manufactures for use architectural coatings in the district. Second, the definition language contained in PAR 1113 limits the use of certain coatings to specific applications. Third, PAR 1113(c)(3) requires that when coatings can be used in more than one coating category the lower VOC content limit is applicable. Lastly, clarifying language has been added to PAR 1113 to restrict coatings to their intended uses. For example, it will be a violation of PAR 1113 to apply a roof coating on any substrate it was not intended for. These provisions when viewed independently or cumulatively provide the user of architectural coatings subject to PAR 1113 with a strong indication that unless PAR 1113 specifically allows it, substitution of low-VOC compliant coatings with higher-VOC coatings is prohibited.

Furthermore, the rule language of Rule 1113 coupled with the fact that compliant coatings are commercially available has been effective in providing a strong deterrent against substitution. SCAQMD enforcement records reveal that there has been a better than 99 percent compliance rate with Rule 1113. This enforcement trend is expected to continue with the adoption of PAR 1113 since further clarification has been added to the rule language to make it clearer that substitution is not allowed and compliant coatings are commercially available for use to meet the interim and final compliance VOC content limits.

5-23 The commentator asserts that the SCAQMD's substitution analysis does not make sense since a contractor is likely to substitute a less durable coating if it performs adequately and give a shorter warranty. The SCAQMD strongly disagrees with the commentator's contention. The SCAQMD in analyzing the potential for substitution investigated whether it was likely that a rust preventative coating with a typical durability of five years would be substituted for an IM coating with a typical durability of ten years or greater. The SCAQMD concluded that based on end user durability requirements, a rust preventative coating would not be used since its performance is much less than an IM coating. Furthermore, significant substitution from all affected coating categories is not likely to occur because uses for various replacement coatings are different and have different performance characteristics. For example, the proposed substitutes have limited specific uses and some of the proposed substitutes would be cost prohibitive.

This is just one of the rationales for the SCAQMD's conclusion that substitution of low-VOC compliant coatings by high-VOC non-compliant coatings will not occur.

By focusing on this one rationale the commentator misconstrues the SCAQMD's complete analysis of this issue.

To further respond to the commentator's assertion that substitution would occur, the SCAQMD has evaluated as a "worst-case" four substitution scenarios, including the commentator's (i.e., a rust preventative coating would be substituted for an IM coating). The substitution scenarios evaluated include: a two-coat nonflat system replaced by a four- or five-coat IM system; a two-coat nonflat system replaced by a three-coat rust preventative coating system: a two-coat nonflat system replaced by a two-oat PSU system; and a four or five coat IM system replaced by a three coat rust preventative coating system.

To analyze these four scenarios, the SCAQMD first established a current, interim limit, and final limit emission baseline per coating system. The baseline VOC calculations take into consideration the average coverage based on the product data sheets researched by the SCAQMD, VOC content, and the durability of the system (see the tables in Appendix D and Table 4-2 in Chapter 4) to arrive at an annual VOC emission rate for the coating system. The current, interim limit, and final limit, annual VOC emission rate for the four substitution scenarios is presented in Tables F-2 through F-4.

TABLE F-2
COMPARISON OF SUBSTITUTE COATING SYSTEMS (CURRENT)

Coating System	TYPICAL COMPONENTS	Current VOC Content Limit (g/l)	Average Coverage (ft^2/gal)	Emissions per Component (g VOC/ft^2)	Total System VOC (g VOC/ft^2)	Durability (yrs)	Annual Total System VOC Emission Rate (g VOC/ft^2)/yr
IM – 5 Coats	1 Primer	420	380	4.18	22	10	2.2
	2 Mid/2 Top		350	18.16			
IM – 4 Coats	2 Primer	420	380	8.36	17	5	3.4
	2 Top		350	9.08			
RP – 3 Coats	1 Primer	400	460	3.14	10	5	2.0
	2 Top		440	6.57			
NF – 2 Coats	1 Primer	350	400	3.31	6	5	1.2
	1 Top	250	400	2.36			
PSU – 2 Coats	2 Primer	350	400	6.63	7	2	3.5

TABLE F-3
COMPARISON OF SUBSTITUTE COATING SYSTEMS (INTERIM -2002)

Coating System	TYPICAL COMPONENTS	Interim VOC Content Limit (g/l)	Average Coverage (ft^2/gal)	Emissions per Component (g VOC/ft^2)	Total System VOC (g VOC/ft^2)	Durability (yrs)	Annual Total System VOC Emission Rate (g VOC/ft^2)/yr
IM – 5 Coats	1 Primer	250	300	2.15	12	10	1.2
	2 Mid/2 Top		275	9.4			
IM – 4 Coats	2 Primer	250	300	4.30	9	5	1.8
	2 Top		275	4.70			
RP – 3 Coats	1 Primer	400	460	2.72	8	5	1.6
	2 Top		440	5.69			
NF – 2 Coats	1 Primer	200	350	1.77	2	5	0.4
	1 Top	150	360	0.67			
PSU – 2 Coats	2 Primer	200	350	3.54	4	2	2.0

TABLE F-4
COMPARISON OF SUBSTITUTE COATING SYSTEMS (FINAL - 2006)

Coating System	TYPICAL COMPONENTS	Final VOC Content Limit (g/l)	Average Coverage (ft^2/gal)	Emissions per Component (g VOC/ft^2)	Total System VOC (g VOC/ft^2)	Durability (yrs)	Annual Total System VOC Emission Rate (g VOC/ft^2)/yr
IM – 5 Coats	1 Primer	100	330	0.54	3	10	0.3
	2 Mid/2 Top		320	2.20			
IM – 4 Coats	2 Primer	100	330	1.08	2	5	0.4
	2 Top		320	1.10			
RP – 3 Coats	1 Primer	100	300	0.74	2	10	0.2
	2 Top		300	1.48			
NF – 2 Coats	1 Primer	100	370	0.40	1	5	0.2
	1 Top	50	400	0.18			
PSU – 2 Coats	2 Primer	100	370	0.79	1	2	0.5

IM = Industrial Maintenance
RP = Rust Preventive
NF = Nonflat
PSU = Primers, Sealers, and Undercoaters

The interim VOC limit change that could potentially result from the four substitution scenarios is presented in Table F-5.

TABLE F-5
VOC CHANGE ASSOCIATED WITH EACH SUBSTITUTION SCENARIO (INTERIM)

Interim Coating System	Annual Total System VOC Emission Rate (g VOC/ft^2)/yr	Substitute Coating System	Annual Total System VOC Emission Rate (g VOC/ft^2)/yr	VOC Change (g VOC/ft^2)/yr
NF-2 (150 g/l)	0.4	IM-5 (250 g/1)	1.2	+0.8
NF-2 (150 g/l)	0.4	IM-4 (250 g/1)	1.8	+1.4
NF-2 (150 g/l)	0.4	RP-3 (400 g/l)	1.6	+1.2
NF-2 (150 g/l)	0.4	PSU – 2 (100 g/l)	2.0	+1.6
IM-5 (250 g/1)	1.2	RP-3 (350 g/l)	1.6	+0.4
IM-4 (250 g/1)	1.8	RP-3 (350 g/l)	1.6	-0.2

The final limit VOC change that could potentially result from three of the four substitution scenarios is presented in Table F-6. It should be noted that the SCAQMD did not analyze the IM system being replaced by a rust preventative coating system scenario since both of these coatings will have the same final VOC content limit.

TABLE F-6
VOC CHANGE ASSOCIATED WITH EACH SUBSTITUTION SCENARIO (FINAL)

Final Coating System	Annual Total System VOC Emission Rate (g VOC/ft^2)/yr	Substitute Coating System	Annual Total System VOC Emission Rate (g VOC/ft^2)/yr	VOC Change (g VOC/ft^2)/yr
NF-2 (50 g/l)	0.2	IM-5 (100 g/1)	0.3	+0.1
NF-2 (50 g/l)	0.2	IM-4 (100 g/1)	0.4	+0.2
NF-2 (50 g/l)	0.2	RP-3 (100 g/l)	0.2	=
NF-2 (50 g/l)	0.2	PSU – 2 (100 g/l)	0.5	+0.3

IM = Industrial Maintenance
RP = Rust Preventive
NF = Nonflat
PSU = Primers, Sealers, and Undercoaters

As shown in Tables F-5 and F-6, if the four substitution scenarios were to occur, although unlikely due to rule prohibitions or performance desirability, there could be an increase in VOC emissions for some systems on an area covered per year basis. However, even if substitution were to occur, PAR 1113 would still achieve overall VOC emission reductions. As presented in Table F-7, the SCAQMD analyzed several variations of the four substitution scenarios discussed above to determine the net effect if substitution were to occur. As a starting point for the first three scenarios, the SCAQMD assumed that 10 percent of the nonflat (NF) coating usage in the interim and final years would be replaced by higher-VOC IM, rust preventative (RP), or primers, sealers, and undercoaters (PSU). The SCAQMD also analyzed a single substitution scenario where 10 percent of the IM coating usage in the interim and final years would be replaced by higher-VOC rust preventative coatings. For these single substitution scenarios, 10 percent substitution of nonflat and IM coatings represents an extremely conservative assumption considering that Rule 1113 has a greater than 99 percent compliance history.

Additionally, as a "worst-case" the SCAQMD analyzed two scenarios where a combination of higher-VOC coatings may be substituted for lower-VOC coatings. In one of the combination scenarios, the SCAQMD assumed that 30 percent of the nonflat coating usage in the interim and final years would be replaced by higher-VOC IM (10 percent), rust preventative (10 percent), and PSU coatings (10 percent). In the other combination scenario, the SCAQMD assumed that both the 30 percent nonflat and 10 percent IM substitution scenarios would occur at the same time. The results of the SCAQMD's substitution analysis and the net effect to PAR 1113 overall VOC emission reductions are presented in Table F-7.

TABLE F-7
NET EFFECT OF POTENTIAL SUBSTITUTION

Substitution Scenarios	Interim Limit VOC Increase (tons/day)	Final Limit VOC Increase (tons/day)	Remaining VOC Reductions (tons/day)	Loss of VOC Reductions (tons/day)
10% of NF replaced by IM	1.26	0.33	19.47	2.33
10% of NF replaced by RP	3.36	0.47	17.22	4.58
10% of NF replaced by PSU	0.47	0.24	20.35	1.45
30% of NF replaced by IM/RP/PSU	7.32	1.69	10.56	11.24
10% of IM replaced by RP	0.43	0.04	20.78	1.02
30% NF and 10% IM	7.75	1.73	9.54	12.26

IM = Industrial Maintenance
RP = Rust Preventive
NF = Nonflat
PSU = Primers, Sealers, and Undercoaters

As shown in table F-7, even if substitution where to occur, PAR 1113 would still achieve overall VOC emission reductions.

As part of the environmental impacts analysis for PAR 1113, the SCAQMD conducted an exhaustive and comprehensive analysis of currently available low VOC coatings that forms the primary basis for PAR 1113. This analysis evaluated hundreds of coatings from approximately 13 manufacturers and considered the following coating characteristics: VOC content, percent solids by volume, coverage, adhesion, *durability*, pot life, shelf life, gloss, and drying time (see the tables in Appendix D and the related summary tables in Chapter 4 of the Final SEA). The analysis of resin manufacturers and coating formulators product data sheets provides the most accurate information available to the SCAQMD, which is based on qualitative and quantitative information (e.g., laboratory testing, actual product usage data, and field testing data). The available information from product data sheets indicates that for industrial maintenance floor coatings, low-VOC coatings tended to have a higher solids content, with a slightly, but not substantially lower average coverage area than conventional coatings. For most other coating categories affected by PAR 1113, the solids content and area of coverage for low-VOC coatings was, on average, comparable to conventional coatings although some categories (e.g., quick-dry primers, sealers, and undercoaters and stains) had slightly less coverage than conventional coatings in these categories.

The SCAQMD product data sheet analysis has since been corroborated by the NTS study specifically in the context of the interim VOC content limits. For the final VOC content limits the preliminary results of the NTS study indicate that the compliant coatings may have some application problems. As a result, the SCAQMD has given coating formulators seven years to reformulate their coatings to correct coating application problems. Furthermore, PAR 1113 contains a technology assessment provision whereby approximately one year prior to the interim and final compliance dates staff will perform a technology assessment of the availability of compliant coatings. If compliant coatings are unavailable by the completion of the technology assessment to meet the final limit, the SCAQMD will report back to the Governing Board as to the appropriateness of maintaining the existing VOC content limits.

Regarding the SCAQMD's review of resin manufacturer's and coating formulator's product data sheets and the preliminary results from the NTS study the commentator is referred to response to comment #2-1.

5-24 First and foremost, the SCAQMD's research and investigation reveals that compliant coatings are commercially available for use to meet the interim and final compliance VOC content limits. Therefore, it is not likely that substitution will occur. Second, clarifying language has been added to PAR 1113 that will make it clear that coatings should only be used for their intended purposes. This should further alleviate the potential for substitution. Lastly, even if there is some limited substitution due to the implementation of PAR 1113, overall emission reductions will still be achieved. The commentator is referred to responses to comments #5-22 and #5-23.

5-25 Current substitution practices serves as an indication of whether substitution is a widely accepted practice that will likely continue in the future. More importantly, the

SCAQMD has determined that substitution is unlikely to occur since compliant coatings will be available. Again, the SCAQMD has conducted an extensive analysis of currently available low VOC coatings as well as conventional coatings. This analysis evaluated hundreds of coatings. Based on this analysis, PAR 1113 is not expected to result in the substitution of low-VOC compliant coatings with higher-VOC coatings. Even if there is some limited substitution due to the implementation of PAR 1113, overall emission reductions will still be achieved. Therefore, adverse air quality impacts are not expected to result due to substitution associated with the implementation of PAR 1113. The commentator is referred to responses to comments #5-22, #5-23, and #5-24.

5-26 The commentator indicates that it is unclear whether the SCAQMD will review all environmental or just water impacts associated with future limits at the time the technology assessment is undertaken. The commentator advocates that a rigorous environmental assessment be undertaken during the technology assessment. The SCAQMD will conduct and complete one-year prior to the interim and final VOC content limits going into effect a technology assessment. The technology assessment will further confirm the availability and feasibility of compliant coatings. Since the language regarding technology assessments is included in PAR 1113, the SCAQMD intends to revise the VOC limits or extend the compliance dates depending on the results of the technology assessment. This continuing evaluation requirement assures that future limits will always be based on the current state of coating technology. Any revision of Rule 1113 will require another assessment of the environmental impacts, if any, of the proposed changes.

5-27 The commentator cites a portion of the Draft SEA on page 4-28 which states "A research report release in March 1997 demonstrated that latex (nonflat technology) paint is, in fact, not a hazardous waste product." The commentator states that it agrees with this conclusion. However, the commentator then points out that authorities in California do not share this view and therefore this should be analyzed.

The SCAQMD appreciates the commentator's concurrence on this issue. The SCAQMD believes that this information is still accurate concerning EPA's view that latex paint based on current coating technology is not a hazardous waste.

Indeed, due to federal regulation of hazardous air pollutants, coating formulators have replaced many of the more hazardous solvents (e.g., EGBE) with less hazardous solvents (e.g., texanol) in latex paint formulations. Therefore, today's latex-based paint formulations are expected to contain even less hazardous compounds.

The commentator's blanket assertion that California authorities would consider all latex paint a hazardous waste is not necessarily correct. Therefore, clarification on this issue is appropriate. It should be noted that the SCAQMD believes its understanding of how latex paint would be treated under federal law is accurate as presented in the Draft and Final SEA.

In the context of California law, discussions with the Department of Toxic Substances Control (DTSC) reveals that the DTSC would not consider latex paint as a hazardous waste in its virgin (e.g., pure) form. Furthermore, specifically relevant to PAR 1113, DTSC recommends cleaning equipment (e.g., brushes, rollers, and spray guns) used to apply latex paint with water in sinks or other facilities that flows directly to a wastewater treatment facility. Thus, wastewater generated from the cleaning of painting equipment applying latex paint may be properly disposed of into the sewer system.

However, the DTSC indicates that when coating formulators add various ingredients (e.g., pigments, binders, biocides, etc.) to virgin latex paint it becomes a hazardous waste. In this form, latex paint cannot be disposed of into sewers, unless it is a constituent of wastewater generated from equipment cleaning activities, or storm drains. The DTSC's position on this issue, for the most part, is based on a 1995 study conducted by California Polytechnic State University (Cal Poly). The Cal Poly study collected waste latex samples over a three-year period from Household Hazardous Waste (HHW) programs throughout California. The results of the study indicated that 94 percent of the samples tested failed the California's toxicity criteria and were classified as hazardous waste.

However, the validity of the 1995 Cal Poly study in the context of PAR 1113 is somewhat questionable. The study analyzed samples collected from HHW programs throughout California. According to DTSC information, a lot of the paint collected by HHW programs is on the average 10 years old and contains more hazardous constituents than today's paints. Due to federal regulation of hazardous air pollutants, coating formulators have replaced many of the more hazardous solvents (e.g., EGBE) with less hazardous solvents (e.g., texanol) in latex paint formulations. Therefore, today's latex-based paint formulations are not expected to contain the amount and type of hazardous compounds as coating formulations from 10 years ago.

Furthermore, the Cal Poly study did not analyze samples from equipment cleaning practices associated with the use of latex paint. The vast majority of water quality impacts potentially associated with PAR 1113 will be generated from equipment cleaning, where waste water will be disposed of properly down the sewer system. Therefore current latex-based paint is disposed of improperly, there remains a valid question whether it would be truly considered a hazardous waste.

However, assuming that latex paint based on current technology is hazardous waste, this does not change the SCAQMD's overall conclusion that significant adverse water quality impacts are not anticipated from PAR 1113. As explained above, disposal practices are not expected to change with the implementation of PAR 1113. In other words, PAR 1113 will not cause an increase in the amount of coating currently disposed properly or improperly in sewer systems, storm drains, groundwater, or landfills. The SCAQMD's 1996 survey bears this out. Furthermore, non-hazardous solvents in low-VOC compliant coatings are replacing hazardous solvents in conventional coatings. Lastly, public outreach programs initiated by the commentator, the SCAQMD, the California Integrated Waste Management Board, and others will further reduce the improper disposal of coatings by paint contractors and the public.

5-28 The commentator asserts that the SCAQMD's analysis of the potential public services impacts associated with the use of reformulated acetone-based compliant coatings is inadequate because it relies on information obtained from interviews with local fire departments and not an actual analysis of acetone's volatility as compared to other solvents. The SCAQMD disagrees with the commentator's assertion for several reasons.

First, in the context of PAR 1113, it should be noted that the use of acetone in the reformulation of complaint coatings is relatively small. Acetone reformulation was considered to be the "worst-case" for the purposes of public services and hazards impacts associated with the implementation of PAR 1113. Thus, the SCAQMD's environmental impact analysis tends to overestimate the public services and hazards impacts from PAR 1113.

Second, the SCAQMD did not solely rely on information from local fire departments in analyzing the impacts associated with the use of reformulated acetone-based coatings. The SCAQMD conducted its on independent review of the flashpoint, vapor pressure, and flammable range, (e.g., the span between the lower explosive limit (LEL) and the upper explosive limit (UEL)) of acetone, currently used solvents, and replacement solvents (see Table 4-7 in Final SEA). This analysis revealed that acetone in comparison with currently used solvents has comparable volatility and flammability characteristics. Based on this analysis coupled with the information received from local fire departments, the SCAQMD concluded that PAR 1113 would not create significant adverse public services or hazards impacts.

Third, potential adverse impacts to fire departments can occur two ways: (1) more frequent responses; and (2) more frequent inspections. To determine whether PAR 1113 would significantly increase or alter fire department's level of service (i.e., increased responses to fires, explosions, or inspections), the SCAQMD sought their input. Feedback received from these authorities indicates that, based upon their extensive professional experience as a result of years of regulating the use and storage of flammable materials, the use of acetone will pose no greater risks than the use of existing solvents such as: MEK, toluene, butyl acetate, etc., even though acetone is slightly more flammable. Thus, the commentator underestimates the importance of the input from fire departments in determining public services impacts from PAR 1113. Furthermore, the SCAQMD expects that anyone handling acetone-based coatings or any other flammable liquids will strictly adhere to the storing, dispensing, and handling requirements of these materials to lessen the danger of fire and explosion.

Accordingly, the SCAQMD does not anticipate that PAR 1113 will not result in significant adverse public service impacts (e.g., fire departments). The commentator is also referred to response to comment #2-4.

5-29 The commentator indicates that the opinions of the fire authorities, based exclusively on the UFC classifications, do not address the relative fire hazard of acetone, compared to other solvents, in *lacquers* being used by painters in the field. Furthermore, the commentator alleges that these opinions were not direct evidence of no significant fire hazards impacts from the use of acetone, and are a totally impermissible basis from which SCAQMD could reach an inference that was consistent with its prejudgment of the issue.

The SCAQMD assumes for the purposes of this comment that the commentator when referring to lacquers actually means the coating categories affected by PAR 1113. Lacquers were addressed in the 1996 amendments and are not involved with this rule-making effort. In any event, the SCAQMD adamantly disagrees with the commentator's assertions for several compelling reasons. First, the SCAQMD did not solely rely on information from local fire departments in analyzing the impacts associated with the use of reformulated acetone-based coatings. The SCAQMD conducted its on independent review of the flashpoint, vapor pressure, and flammable range, (e.g., the span between the lower explosive limit (LEL) and the upper explosive limit (UEL)) of acetone, currently used solvents, and replacement solvents (see Table 4-7 in Final SEA). This analysis revealed that acetone in comparison with currently used solvents has comparable volatility and flammability characteristics. Thus, it is a mischaracterization on the commentator's part to assert that the SCAQMD's does not address the relative fire hazard of acetone, compared to other solvents.

Second, the information received from fire authorities is highly relevant because it provides an understanding of how they would handle an accidental release or explosion associated with the use of acetone both during transport and in the field. Feedback received from these authorities indicates that, based upon their extensive professional experience as a result of years of regulating the use and storage of flammable materials, the use of acetone will pose no greater risks than the use of existing solvents such as: MEK, toluene, butyl acetate, etc., even though acetone is slightly more flammable. Furthermore, since PAR 1113 does not increase the probability that a transport accident will occur and the fire authorities would handle this type of incident the same compared with coatings formulated with conventional solvents as with acetone-based coatings, the hazard impacts are not considered to be significant. Thus, the commentator under estimates the importance of the input from fire departments in determining hazards impacts from PAR 1113.

Third, it should be noted that the use of acetone in the reformulation of complaint coatings is relatively small. Sealers and floor coatings are the only affected coating categories where some amount of acetone reformulation is expected to occur. These categories constitute a very small group of coatings compared to the total coating categories impacted by PAR 1113. Acetone reformulation was considered to be the "worst-case" for the purposes of public services and hazards impacts associated with the implementation of PAR 1113. Thus, the SCAQMD's environmental impact analysis tends to overestimate the public services and hazards impacts from PAR 1113.

Finally, the SCAQMD also analyzed the probability of increased accidents and their consequences associated with acetone reformulation. The SCAQMD found that many coatings are already formulated with acetone and, therefore, are already being transported in the district. Additionally, many conventional coatings are formulated with other solvents that are considered as flammable as acetone (e.g., t-butyl acetate, toluene, xylene, MEK, isopropanol, butyl acetate, and isobutyl alcohol). Based upon SCAQMD review of coating product information sheets, future compliant low VOC coatings are expected to be formulated with less or non-flammable materials such as texanol, propylene glycol, etc. Consequently, it is anticipated that future compliant coatings will follow the existing trend of moving away from hazardous coating formulations to less or non-hazardous formulations.

5-30 The commentator questions why 28 – 52 tons per day of solid waste impacts associated with PAR 1113 are not considered significant considering the fact that PAR 1113 will reduce VOC emissions by 20 tons per day. The commentator's comparison of solid waste impacts to VOC emissions reductions is analogous to comparing apples to oranges (e.g., not a like comparison). The commentator is trying to insinuate that because solid waste impacts should be significant because they are in the numerical range as PAR 1113's *significant air quality benefits*. This comparison misconstrues the SCAQMD's solid waste impact analysis.

Thresholds of significance are different for various environmental media. The SCAQMD has developed different significance thresholds for air, water, solid/hazardous waste, transportation, etc. To determine if a project has significant solid waste impacts, the SCAQMD totals all solid waste generated from a project on a daily basis and then compares this total to the total permitted landfill capacity in the district. In the context of PAR 1113, the "worst-case" daily solid waste that could potentially be generated was estimated to be 28 tons in 2002 (interim year), 38 tons in

2006 (final year), and 52 tons in 2010. When comparing these totals to the total permitted landfill capacity in the district, which are 0.03 percent in 2002, 0.04 percent in 2006, and 0.05 percent in 2010, the potential impacts were deemed not significant. The commentator is also referred to responses to comments #4-17 and #4-18.

The commentator also asserts that since California authorities consider latex paint a hazardous waste this impact should be analyzed in the context of solid waste. The SCAQMD has analyzed the hazardous waste impacts associated with PAR 1113 and concluded that significant impacts are not expected to occur. The district has sufficient disposal capacity to handle any hazardous waste generated from PAR 1113.

However, specifically in the context of the disposal of latex paints, significant adverse hazardous waste impacts are not expected for several reasons. First, the solid waste analysis compensates for the potential disposal of latex paint. The solid waste impacts analysis represents a "worst-case" because it assumes that five and one percent (total six percent) of all affected coatings as well as ten percent of all IM and floor coatings could potentially be landfilled. Since this analysis overestimates the solid waste impacts associated with PAR 1113 because it is highly unlikely that this amount of coatings would all be disposed of on the same day, latex paint would fall within the range of this analysis.

Second, as a result of federal regulations, coating formulators have replaced many of the more hazardous solvents (e.g., EGBE) with less hazardous solvents (e.g., texanol). Therefore, latex paint based on current or future coating technology may not truly be a hazardous waste. It should be noted that latex paint that is dried out naturally may be disposed of properly into landfills and is not considered a hazardous waste per se.

Third, assuming that latex paint based on current technology is hazardous waste this does not change the SCAQMD's overall conclusion that significant adverse hazardous waste impacts are not anticipated from PAR 1113. Disposal practices are not expected to change with the implementation of PAR 1113. In other words, PAR 1113 will not cause an increase in the amount of coatings currently disposed of properly or improperly in landfills. Additionally, the SCAQMD's 1996 survey bears this out, public outreach programs initiated by the commentator, the SCAQMD, the California Integrated Waste Management Board, and others will further reduce the improper disposal of coatings by paint contractors and the public.

5-31 The commentator is referred to responses to comments #5-27, #5-28, #5-29, and #5-30.

5-32 The issue of whether or not to consider an alternative similar to the national AIM coating rule was addressed in response to comment #4-5 in Appendix C of the Draft SEA for PAR 1113. For example, staff analyzed the national AIM rule's categories and definitions, as well as the VOC limits and concluded that this rule would require adding additional coating categories to the Rule 1113 Table of Standards with the default VOC content limit of 250 g/l limit. Adding additional coating categories with the default VOC content limit would only make the rule more confusing, instead of simplifying the rule. For example, the national AIM rule has separate categories for interior and exterior nonflats, which have the same VOC limit. This does not add any simplicity to the rule, just redundancy. The current Rule 1113 – Architectural Coatings currently contains an exemption for coatings sold in containers having a capacity of one quart or less (Rule 1113(g)(1)(A)). To address industry comments regarding adding additional coating categories, staff has created several new coating categories. However, the current and future proposed VOC limits are different than those found in the national AIM rule, which would not generate VOC emission reductions to the same level as PAR 1113. Staff has, however, adopted the national AIM rule definitions and provisions for some categories, where appropriate.

5-33 The SCAQMD acknowledges and concurs with the commentator that a reactivity-based alternative is not feasible at this time. With regard to a reactivity-based rule, the science regarding VOC reactivities is currently not well developed, the SCAQMD acknowledges that when the science becomes reasonably well developed a reactivity-based regulatory approach may provide an alternative or additional means to assist in making progress towards attaining and maintaining the state and national ambient air quality standards for ozone. To address potential future advances in knowledge about reactivity, the SCAQMD has added language to PAR 1113 provision (f)(3)which will address the commentator's concern. See also responses to comments #3-4 and #4-1.

5-34 Fate and availability studies are currently under evaluation by the California Air Resources Board. The SCAQMD will provide assistance as needed and appropriate. The results of these and other relevant studies will be considered during future SCAQMD rulemaking. As of today, the science is not adequate to support rulemaking based on these claims.

5-35 An increments of progress alternative appears to be similar to a performance-based approach. The concept for a performance-based rule provision or project alternative was originally raised by members of the Industry Working Group (see "Industry Working Group Meetings" discussion in Chapter 2). Rather than establish lower VOC content requirements for specified categories of coatings, this alternative would establish emission standards based on emissions per area covered or coating durability.

This alternative was rejected as infeasible because the Industry Working Group could not reach consensus on how to establish performance standards as this depends on the type of application or coating technology. For example, alkyd-based coating formulations currently have a life cycle of five to seven years, while urethane-based coating formulations may have a life cycle of approximately 20 years. Agreement could not be reached concerning the appropriate standard for each type of coating technology. As a result, this alternative has been dropped from further consideration. However, an average provision ahs been expanded to include additional AIM coatings.

5-36 The definition of floor coatings has been changed as requested.

5-37 Thank you for your comment.

5-38 The SCAQMD has found a variety of products that meet the proposed rule limits for the category in question. Therefore, staff does not support a separate category for industrial maintenance primers, sealers, and undercoaters.

5-39 The commentator is referred to response to comment #5-38.

5-40 Your comment is noted.

5-41 The rust preventative definition has been revised as suggested.

5-42 A new definition for waterproofing concrete/masonry sealers (PAR 1113 §(b)(53) has been added to the proposed amendments as suggested.

5-43 The interim compliance date has been extended to July 1, 2002, and the final compliance date has been extended to July 1, 2006. Based on the number of AIM coatings that are currently available that meet the both the 2002 and 2006 compliance dates, and the fact that performance characteristics for many of the future compliant coatings (especially coatings that comply with the interim VOC content limits) are equivalent, or in some cases superior to conventional high VOC coatings, both compliance dates would appear to allow sufficient time to reformulated coatings using existing resin technologies or develop new formulations.

Staff has considered the comments provided by end-users, coating manufacturers, and resin suppliers pertaining to testing and commercialization of technology. In response, the final proposal allows for an additional 18 months for the implementation of the final VOC limit. This revision results in a total of seven years for necessary laboratory and field testing. The commentator is also referred to response to comment #2-1.

5-44 Compliance deadlines are a necessary component of the proposed amendments to provide incentives for the coatings industry to perform the necessary research and development of compliant coatings. Without compliance dates there would be little incentive to develop compliant coatings and any technology assessment performed would likely result in a more limited range of compliant products than would otherwise be the case. The commentator is referred to response to comment #5-43.

5-45 For consideration of a performance-based approach the commentator is referred to the response to comment #5-35.

5-46 The SCAQMD has modified the proposed amendments and removed the labeling requirement for industrial maintenance coatings in order to avoid duplication of the National AIM rule. However, the staff asserts that labeling of rust-preventative coatings will mitigate any potential misuse of those coatings, and enhance the enforceability.

5-47 In response to comments, as well as additional information collected to mitigate the concerns to the general public pertaining to use of two-component polyurethane coatings, the AQMD has removed this provision from the proposed rule. For a more detailed explanation, the commentator is referred to the response to comment #1-2.

COMMENT LETTER #6

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April 21, 1999

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Re: Draft SEA for Proposed Rule 1113 Amendments

Dear Mr. Stroud:

We are legal counsel for EL RAP, a leading California paint industry trade association, as well as for 18 paint manufacturers, three painting contractors, and seven retail paint dealers. We write to comment upon the Draft Subsequent Environmental Assessment, dated March 19, 1999, relating to the amendments to SCAQMD's Rule 1113 staff proposes for adoption at the May board meeting.

6-1 The proposed amendments would depart from prior practice and impose extremely low limits in 2002, and even more draconian limits in 2005, on various architectural coatings, including non-flats, industrial maintenance (high performance) coatings, quick-dry enamels, and primers, sealers, and undercoaters. These amendments would ban approximately 99% of all such coatings now bought, sold, and used in SCAQMD, and force manufacturers to make, dealers to sell, and contractors and do-it-yourselfers to use, those special-purpose coatings that they now freely choose to make, sell, and use only in exceptional cases (low-odor, graffiti abatement, apartment re-paint). These truly unprecedented proposals, if adopted, would radically transform the coatings industry and market in SCAQMD.

6-2 Notwithstanding the extreme nature of your proposals, the Draft SEA blithely concludes (at 1-1) that "the proposed

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6-2 amendments will not generate any significant adverse environmental impacts." This conclusion is not only incorrect, but also incredible. That is because the Draft SEA totally fails to address the massive adverse environmental impacts a ban of 99% of any product line – certainly these product lines – is bound to entail.

6-3 Certain such impacts will arise even if, as SCAQMD conveniently assumes, the special-purpose paints so few people now elect to use will somehow prove to become perfect substitutes for those paints virtually all users now freely choose. Surely the remote possibility that this rosy scenario will occur is eclipsed by two much more likely scenarios. Initially, we are likely to encounter a market in which many users, although disgruntled, will attempt to use the remaining low-organic compound substitutes. But later, after wide-spread product failures, we will find ourselves in a situation in which users have become so dissatisfied that they altogether stop using paints to coat substrates or switch to non-paint substitute products to protect substrates. In each of these two likely scenarios, severe adverse environmental impacts arise.

6-4 The adverse environmental impacts ignored in the Draft SEA include (1) aesthetic impacts, (2) health and safety impacts, (3) increased reactivity impacts, (4) increased volatility impacts, (5) increased emission impacts, and (6) impacts resulting from the increased manufacture and installation of non-paint substitutes.

6-5 We regret that the staff did not give the public a 45-day comment period, as promised during the December 9, 1998 public consultation meeting. The truncated 30-day period has proved prejudicial to our clients. Accordingly, we reserve the right to submit additional comments in the next 15 days and to receive written responses thereto.

I. <u>PRODUCTS ON THE MARKET TODAY</u>

6-6 The non-flat product category subject to further proposed regulation is very broad and includes various sub-categories. Approximately 1,000,000 gallons of high-gloss non-flats are sold in the SCAQMD each year. Roughly 250,000 gallons thereof are solvent-borne and made with alkyd resins. About 750,000 gallons of high-gloss non-flats are water-borne and use acrylic resins.

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Special purpose (low-organic compound) non-flats do not successfully achieve a high gloss.

Approximately 7,000,000 gallons of semi-gloss non-flat coatings are sold in the SCAQMD each year. Substantially all of these are water-borne. Roughly 3,450,000 such gallons are made with acrylic resins and used for interior or exterior applications. About 3,450,000 gallons are made with latex or vinyl resins and used primarily for interior applications. Only approximately 100,000 gallons of semi-gloss non-flats are made each year with low-organic compounds, and they are used only for

6-6 cont. apartment re-paint, low-odor, or graffiti abatement situations.

Approximately 2,000,000 gallons of satin or eggshell non-flats are sold in SCAQMD each year. Virtually all these coatings are water-borne. About 450,000 such gallons are made with acrylic resins and used on both interior and exterior surfaces. About 1,450,000 gallons are made with traditional latex or vinyl resins and used primarily for interior applications. Only about 100,000 gallons of satin or eggshell non-flats contain low-organic compound technology and are used for apartment, low-odor, and graffiti purposes.

Approximately 2,000,000 gallons of industrial maintenance coatings are sold in SCAQMD each year. Approximately 860,000 gallons of quick dry primers, sealers and undercoaters are sold in SCAQMD each year. Approximately 2,800,000 gallons of primers, sealers and undercoaters are sold in SCAQMD each year. Approximately 400,000 gallons of quick dry enamels are sold in SCAQMD each year.

II. <u>2002 BANS</u>

The proposed 2002 non-flat limit of 150 g/L, to be effective at the start of 2002, would effectively outlaw substantially all high-gloss non-flats in the SCAQMD, whether solvent-borne or water-borne, interior or exterior.

6-7 The 150 g/L limit would also ban nearly half of all semi-gloss non-flats, including substantially all made with acrylic resins and most such products used for exterior applications.

The 150 g/L limit would further outlaw about a quarter of all eggshell and satin non-flats, again including substantially all acrylics and most exteriors.

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6-7 cont. The 250 g/L limit on industrial maintenance coatings would ban approximately 70% of the volume of coatings sold in SCAQMD. The 200 g/L limit on primers sealers and undercoaters would ban approximately one-third of the volume of those coatings sold in SCAQMD. The 200 g/L limit on quick dry primers, sealers and undercoaters would ban approximately 80% of the volume of those coatings sold in SCAQMD.

The 150 g/L limit on quick dry enamels would ban all such coatings sold in SCAQMD.

III. SIGNIFICANT ENVIRONMENTAL EFFECTS OF 2002 BANS

6-8 To the extent the Draft SEA does purport to assess any environmental impacts, it does so in omnibus fashion, without reference to limit or coating. Such collective assessments are proper only if and when the known similarities of members of a class are present throughout the class. *Dithiocarbamate Task Force v. EPA*, 98 F.3d 1394, 1399, 1405 (D.C. Cir. 1996). Accordingly, the Draft SEA must assess the effect of the 2002 limit, itself, on each affected coating. This type of limit-specific and category-specific analysis must be carried out for all impacts. In particular, it must be carried out for the following five impacts which are either completely omitted, or essentially ignored, in the Draft SEA.

A. AESTHETIC IMPACTS

6-9 CEQA provides that it is the policy of California to take all actions necessary to provide its people with "enjoyment of aesthetic, . . . scenic, and historic environmental qualities." Pub. Res. Code § 21001(b). The environment must be pleasing to the senses and intellect of man, and regulations must provide a decent home and satisfying living environment for every Californian. *Id.* at §§ 21000(b), (g); 21001(d). Under the CEQA Guidelines, a project is deemed to have a significant effect on the environment if it will have a "substantial, demonstrable negative aesthetic effect." 14 Cal. Code Regs., App. G(b).

In *Quail Botanical Gardens Foundation, Inc. v. City of Encinitas*, 29 Cal.App.4th 1597, 1603-07 (1994) the court set aside the certification of a negative declaration based upon the city's failure to analyze the aesthetic impacts (impaired ocean views) of the project (a residential subdivision). The court found substantial evidence supporting a fair argument of the

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possibility of such impact. It ruled that Appendix G(b) of the Guidelines established "a rebuttable presumption" that aesthetic impacts are significant. *Id.* at 1604. The court found it "self-evident" that the project would have negative effects on "beauty." *Id.* at 1604, 1606. Any assertions to the contrary by the city were not adequate to support a decision to dispense with environmental analysis of the aesthetic impacts. *Id.* at 1607.

EPA has recently analyzed the protective and aesthetic properties of paint, including those at risk here. These are the two basic functions of paint — both of which enhance the environment. In the last two decades the hundreds of thousands of men and women who make, sell and apply paint for a living and the hundreds of millions who apply it to their own houses have accomplished perhaps as much as any group in America to protect our environment. The substitution limits being proposed would have severe adverse impacts. The EPA criteria document correctly concludes that paint occupies the highest position on the aesthetic benefit scale. The EPA criteria document also correctly notes that paint occupies the highest position on the functional benefit scale. In numerous other respects, as well, the threatened coatings provide important health and safety benefits: (a) they inhibit formation of mold, fungi, and mildew on interior surfaces and they promote the removal of such organisms and the disinfecting of such surfaces; (b) they are used to color code process piping for safe maintenance and repair; (c) they help resist corrosion of bridges, balconies, and various other metal structures which support human activity. Substitution limits severely impair these protective and aesthetic functions of paint.

6-9 cont.

Here, SCAQMD's environmental checklist stated that "no significant impacts adversely affecting existing visual resources such as scenic views or vistas, etc. are anticipated to occur." The Draft SEA repeats (at 4-63) this same conclusion and, responding to comments, goes on to invoke the rosy scenario:

> ". . . [T]he rule contains a compliance schedule sufficient for coating formulators to produce acceptable quality low-VOC products. . . . The current compliance schedule should ensure that formulators have sufficient time to reformulate products that exhibit the desired performance characteristics."

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6-9 cont.

Substantial expert and lay testimony has been, and will be, presented — and, indeed, it is self-evident — that outlawing substantially all high-gloss non-flats, exterior non-flats, and interior acrylic semi-gloss, satin, and eggshell non-flats will have significant adverse aesthetic impacts.

6-10

Substantial expert testimony has been, and will be, presented that formulators will not be able to reformulate, test, and market high-gloss, exterior, or interior acrylic non-flats and industrial maintenance coatings by January 1, 2002. This is so for two reasons. First, when proven resin technology exists manufacturers still require three to five years to develop products with the new resins. Second, resin technology does not currently exist, nor can its existence reasonably be predicted, to provide the required performance characteristics in the coatings subject to the proposed amendments. At the December 9, 1998 public workshop a representative of one of the world's leading resin manufacturers said the following about the current and reasonably foreseeable coatings technology:

> "Over those years, many advancements have been made, and as a result, water based polymers now provide excellent performance for a number of coatings applications. For example, in the architectural coatings area, these polymers have enabled coatings manufacturers to significantly reduce the level of VOCs in their products aimed at several coating segments.
>
> It's our opinion, however, there are a number of application areas which require a high level of coatings performance. A number of these would be primers and corrosion resistant coatings, high performance semi-gloss paints, and high performance or even average performance high-gloss latex enamels.
>
> Current state of technology water-based coatings performance is still limited by the current VOCs. Technology still does not offer the viable alternatives needed to meet the aggressive VOC limits in the proposed amendments to Rule 1113 within the time frame specified.
>
> While we continue with research to develop higher performance products at as low a VOC as possible, we cannot predict the results of our research with any

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6-10 cont. certainty. We encourage the setting of a more reasonable timeline for the coatings manufacturers and their suppliers to develop the needed technology. We also encourage periodic reassessments of what is technically feasible."

B. HEALTH AND SAFETY IMPACTS

6-11 In CEQA the Legislature declared its intent that governmental agencies identify critical thresholds for the "health and safety" of Californians and take necessary actions to prevent such thresholds being reached. Pub. Res. Code § 21000(d).

The Draft SEA contains an extensive discussion about the health impacts from certain constituents of coatings. The Draft SEA is silent, however, regarding the health and safety impacts the replacement coatings themselves will cause due to their vastly inferior performance characteristics.

At the December 9, 1998 public workshop a representative of the California Department of Transportation stated that industrial maintenance coatings used for steel structures containing 250 g/L VOC had been "pretty successful" and provide "reasonably good" performance but that Cal Trans "have got some real concerns with the availability of good performing coatings that will meet" the proposed amendments. These concerns included the inability of required replacement coatings to adequately protect structural steel bridges. Similarly, a representative of the Metropolitan Water District stated that the amendments would reduce his approved coatings from 100 to 4, and that the remaining coatings would not be suitable for required industrial use. He further stated that failure of the inadequate substitutes "could result in possible harm to the public". Additionally, a representative from PDCA, which represents 250 painting contractors in SCAQMD, stated that failure of unproven replacement coatings can cause structural, equipment and environmental damage.

C. INCREASED REACTIVITY

6-12 SCAQMD has often focused on the relative reactivity of various organic compounds. Old Rule 66 was the classic case. As another example, SCAQMD adopted Rule 1170 to compel fuel dispensing stations to install methanol-compatible underground

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storage tanks, because methanol is less reactive than gasoline. In its June 10, 1988 report on proposed architectural coatings emission charges, SCAQMD said this: ". . . [D]ifferent solvents have different degrees of reactivity, which affect the formation of photochemical smog differently. To encourage coating manufacturers to shun solvents with high reactivity, coatings with low reactivity solvents should be charged less . . ."

ARB has confirmed that the majority scientific view supports the use of reactivity scaling in clean air regulation. 47-Z Cal.Reg.Not.Reg. 92 (Nov. 4, 1992). ARB there said: "The concept that different hydrocarbons react at different rates is supported by a large body of theoretical, laboratory and observational data . . . ." *Id.* at 1535. ARB undoubtedly had in mind work such as that currently being conducted by Professors Carter and Weiner at U.C. Riverside and Professor Chameides at Georgia Tech.

Section 183(e)(2)(A)(i) of the CAA provides that EPA shall study VOC emissions from products in order to "determine their potential to contribute to ozone." Section 183(e)(2)(B)(iii) provides that in both listing and regulating EPA shall take into consideration those products which emit "highly reactive" VOCs into the air. Section 183(e)(3)(4) provides that EPA shall list products "on a reactivity-adjusted basis."

6-12 cont.

The National Research Council study performed under the CAA states that ". . . VOCs vary widely in the speed with which they react in the troposphere and in the extent to which they promote . . . ozone formation. . . ." *Rethinking The Ozone Problem* at 153.

Finally, the court decisions in California have confirmed the need to examine relative reactivity of reformulated and substitution coatings before regulating. The judgment against Ventura County APCD, for example, invalidated its amendments for its failure to analyze the significant effect on air quality due to "increased reactivity" of the VOCs in the substituted products. The judgment against Bay Area AQMD did the same.

For these reasons, South Coast AQMD cannot ignore the relative reactivities of the mineral spirits in solvent-borne coatings and the glycol compounds in water-borne coatings.

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Organic compounds exhibit wide variations in reactivity with respect to ozone formation. NRC, *Rethinking the Ozone Problem* at 153, 154, 160, 161. The relative reactivities of individual compounds can differ by more than an order of magnitude from one compound to another. *Russell et al.*, "Urban Ozone Control and Atmospheric Reactivity of Organic Gases," *Science* (1995) at 491. Ignoring reactivity may lead to measures that are ineffective or counter-productive. *Id.* at 491, 195. Reactivity-based regulatory systems will reduce more ozone at all cost levels than mass-based systems. *McBride et al.*, "Cost-Benefit and Uncertainty Issues in Using Organic Reactivity to Regulate Urban Ozone", *Environmental Science & Technology* (vol. 31, no. 5 1997) at 241. On one scale, the compounds in solvent-borne coatings, mineral spirits, are roughly half as reactive as those emitted by motor vehicles. Harley et al., "Respeciation of Organic Gas Emissions," *Environ. Sci. Technol.* (1992) 2395 at 2401, Fig. 1. On the other hand, the glycol compounds in water-borne architectural coatings have been described as low-volatility species. *Id.* at 2400. Dr. William
6-13 P.L. Carter recently concluded that current reactivity scales may be overestimating the ozone impacts of mineral spirits and similar petroleum-based mixtures by a factor of 2 or more. "Investigation of the Atmospheric Ozone Formation Potentials of Selected Mineral Spirits" (July 25, 1997).

These results are not surprising considering the physical properties of typical mineral spirits, which are so-called long chain alkanes of C_6 or greater.

The Draft SEA contains (at 4-17 to 4-21 and 5-3 to 5-4) purported discussions of the reactivity issue. But it fails to assess the reactivity effects of any 2002 limit on any coating category, as required. In particular, the 2002 limits will outlaw all solvent-borne non-flats, industrial maintenance coatings, and quick-dry enamels. Therefore, makers, sellers, and users will be forced to manufacture, sell, and apply water-borne substitutes. The best scientific evidence extant to date and, based thereon, the widely-held hypotheses of the leading experts,
6-14 strongly suggests, with a high degree of probability, that the glycol compounds prevalent in the substitute water-borne products are far more reactive than the mineral spirit compounds prevalent in the outlawed solvent-borne products.

The Draft SEA ignores this data. It states (at 4-20) that it is "not . . . prudent" to act on such data because it is

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6-14 cont. not yet complete. However, the Draft SEA does not cite any authority for the proposition that glycol compounds are not significantly more reactive than mineral spirits. The Draft SEA simply assumes the worst of the three possible scenarios. Rather than postponing regulation until it concludes that sufficient data exist to support the most likely hypothesis, or acting according to that hypothesis, SCAQMD persists in regulating according to a theory which has no scientific proponents.

SCAQMD claims (at 4-20) that it is "speculative" to conclude that there will be increased reactivity. This claim is incorrect and, therefore, does not excuse SCAQMD's failure to analyze this impact. The case of *Alliance of Small Emitters/Metals Industry v. SCAQMD*, 60 Cal.App.4th 55, 65-68 (1997), in which a claim of excuse based on speculation was upheld, is clearly distinguishable. There, as an excuse for failing to analyze certain future environmental impacts, SCAQMD contended that the technologies that would be used to comply with the out-year rules were "unknown" at promulgation time. *Id.* at 65, 66. The court accepted this contention, holding that "any efforts to assess the impact of unknown and unknowable technology would be pure speculation." *Id.* at 67.

6-15 Here, by contrast, the special-purpose products which will be used to substitute for the products banned by the 2002 limits are neither "unknown" nor "unknowable." Indeed, they have existed and have been actively marketed — but with extremely limited success — for years. There is no reason why SCAQMD could not have assessed the relative reactivities of the products to be banned and those to be substituted long before now, or waited to regulate on the basis of such an assessment, if it had only wanted to do so. Instead, SCAQMD prefers to regulate prematurely and blind.

"[A]n agency must use its best efforts to find out . . . all that it reasonably can." 14 Cal. Code Regs. § 15144. It is required to conduct a "thorough investigation" of each impact. *Id.* At § 15145. An agency has "an obligation imposed by CEQA to collect information" regarding impacts and it violates that duty when it approves a project where it lacks "necessary information." *Sierra Club v. State Board of Forestry*, 7 C.4th 1215, 1220, 1235-37 (1994).

6-16 Projects are usually operative in future years, and an agency must address the significant effects of future operative

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rules. "Drafting an EIR . . . necessarily involves some degree of forecasting . . . [A]n agency must use its best efforts to . . . disclose all that it reasonably can." 14 Cal. Code Regs. at § 15144. In *Laurel Heights Improvement Assn. v. Regents of University of California*, 47 C.3d 376 (1988), the court made clear that, while the extent of the precision of the analysis may be reduced, the fact that the effects of a project will occur in the future does not create an exemption:

> ". . . UCSF should have discussed in the EIR at least the general effects of the reasonably foreseeable future uses, . . . the environmental effects of those uses, and the currently anticipated measures for mitigating those effects.
>
> ". . . A detailed environmental analysis of every precise use that may conceivably occur is not necessary at this stage. [Citation] The fact that precision may not be possible, however, does not mean that no analysis is required. [Quoting Guideline Section 15144] With the vast intellectual resources at its disposal, the University can surely make informed judgments as to probable future activities at the Laurel Heights facility.

6-16 cont.

> ". . . We find no authority that exempts an agency from complying with the law, environmental or otherwise, merely because the agency's task may be difficult . . ." *Id.* at 398-99.
>
> ". . . [T]he difficulty of assessing future impacts . . . does not excuse preparation of an EIR; such difficulty only reduces the level of specificity required . . ." *Carmel-By-The-Sea v. Board of Supervisors*, 183 Cal.App.3d 225, 250 (1986); *Antioch v. City Council*, 187 Cal.App.3d 1325, 1336-37 (1986); *Rio Vista Farm Bureau Center v. Solano County*, 5 Cal.App.4th 351, 374 (1992).

An agency's "bare conclusions" do not satisfy CEQA's requirement to create an informational document which will inform public decision-makers and the general public of the environmental effects of projects they propose to approve. *Santiago County Water District v. County of Orange*, 118 Cal.App.3d 818, 831 (1981); *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus*, 27 Cal.App.4th 713, 727 (1994). *Citizens to Preserve the Ojai v. County of Ventura*, 176 Cal.App.3d 421, 429 (1985); CEQA Guidelines § 15088(b)

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("Conclusory statements unsupported by actual information will not suffice").

6-16 cont. A study conducted after approval of a project will inevitably have a diminished influence on decision making. *Sundstrom v. County of Mendocino*, 202 Cal.App.3d 296, 307 (1988). CEQA is intended to assure that the environmental consequences of a government decision on whether to approve a project will be considered before, not after, that decision is made. *Stanislaus Natural Heritage Project v. County of Stanislaus*, 48 Cal.App.4th 182, 196 (1996).

D. INCREASED VOLATILITY

Because of their physical and chemical properties, including low rates of evaporation, the glycol compounds found in water-borne coatings do not disperse widely enough nor remain in the atmosphere long enough to participate in ozone formation to any significant extent. Typically, these compounds may be absorbed by building surfaces, pavement, soil, or vegetation; or they may be subtracted from the air through interaction with water vapor, dust, or other particulate matter.

A useful surrogate for atmospheric availability is volatility, measured as vapor pressure. Consumer product regulations in several states, including those of the California Air Resources Board, specify a VOC vapor pressure threshold of 0.1 mm Hg @ 20° C. Compounds with vapor pressures at or below that threshold are exempt from regulation. U.S. EPA recently included the same threshold in its national rule for consumer products, noting in a report to Congress (at 5-5) that such "products often contain ingredients which are of extremely low volatility (*i.e.*, some ingredients evaporate at such a low rate that they do not enter the air to any appreciable degree)."

6-17 At the limits imposed in 2002 substitution of solvent-borne coatings for water-borne coatings will result in increased volatility. For example, a solvent-borne 350 g/L rust preventative coating can be substituted for a water-borne industrial maintenance coating at 250 g/L.

The Draft SEA asserts (at 4-21, 5-2) that organic compounds in architectual coatings are intended to and do "evaporate" in the air. This general statement is true as to the mineral spirit compounds in solvent-borne coatings. But is it

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6-17 cont. true as to those glycol compounds in water-borne coatings? That is the issue the Draft SEA is bound, but fails, to address.

E. INCREASED EMISSIONS

6-18 The substitution of higher VOC, and thus better performing, coatings for the inferior products the proposed amendments will require results in increased emissions. For example industrial maintenance coatings at 250 g/L and rust preventative coatings at 350 g/L may be substituted for banned coatings in other categories.

6-19 SCAQMD concludes (at 4-16 to 4-17) that there are five reasons why "widespread substitution will not occur" and that there will be "no significant adverse air quality impacts" therefrom. Each of the five reasons is so obviously false that this example of the rosy scenario cannot stand.

6-20 First, the Draft SEA cites its review of certain selected "product data sheets" (collated at Appendix D and Table 4-2) and, based on that review, concludes that the substitutes have performance characteristics "comparable" to the high-performance categories. However, the District has commissioned National Technical Systems to conduce a side-by-side comparison of zero, low and high-VOC coatings to analyze their application and durability characteristics. This study was designed to develop objective data in contrast to the subjective marketing claims contained in manufacturers' promotional literature. Although numerous staff members have stated that the NTS study is a critical component of the current rule making and potentially provides much of the foundation therefor, the Draft SEA inexplicably states (at C-3-1, C-4-1) that "the proposed amendments do not rely on this study for the development of PAR". Thus, the Draft SEA chooses to rely on anecdotal accounts rather than the empirical results from the NTS study. In addition to improperly ignoring the NTS results, it has come to our attention that staff has unilaterally deleted critical portions of NTS's original scope of work.

6-21 Second, the Draft SEA claims that Rule 1113 "prohibits the application" of the high-performance coatings in certain situations. This is false. The rule would mandate that manufacturers place certain labels on cans. It would mandate certain painting practices. But it does not "prohibit" the "application" of any coating in any circumstance.

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6-22 Third, the Draft SEA argues that certain uses of certain high-performance substitute are "unlikely." This does not cover the cases in question.

6-23 Fourth, the Draft SEA notes Rule 1113(c)(3). But this, too, governs how manufacturers make and market products. It has no bearing at all on what products users buy and apply.

6-24 Fifth, the Draft SEA argues that there is now "greater than 99 percent compliance" with Rule 1113. This is true because the rule, as now in effect, allows most high-quality products to be made and sold. But when *e.g.* high-gloss, exterior, and industrial maintenance products are banned, the situation will be unprecedented. Past compliance rates cannot realistically be expected to apply to the new situation.

IV. <u>2005 BANS</u>

6-25 The 2005 non-flat limit of 50 g/L would effectively outlaw substantially all semi-gloss, satin, and eggshell latex and vinyl non-flats used primarily for interior applications.

The 100 g/L limit for industrial maintenance coatings will outlaw about 150,000 gallons of water-borne acrylic coatings per year. This will leave only the two-component catalyzed products.

The 100 g/L limit for primers, sealers, and undercoaters will ban roughly 1,000,000 gallons of water-borne products per year.

The 100 g/L limit for quick-dry primers, sealers, and undercoaters will outlaw approximately 35,000 gallons of water-borne products per year.

V. <u>SIGNIFICANT ENVIRONMENTAL EFFECTS OF 2005 BANS</u>

6-26 Again, the Draft SEA fails to analyze the impacts of any one of the 2005 limits as to any one of the coating categories. Instead, it assesses certain impacts, but on an omnibus basis. Furthermore, it omits any analyses of the following impacts:

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A. AESTHETIC IMPACTS

6-27 When the 2005 limits go into effect, the market will undergo revolutionary disruption. Consumers will be left with three choices. First, they can try to use low-organic compound non-flats now used for special purposes (graffiti, odor, apartments) for general purposes. Second, they can use two-component catalyzed systems in the industrial maintenance area. Third, they can leave substrates unpainted or use non-paint protective products. The adverse aesthetic impacts of all these scenarios are severe, but have not been analyzed in the Draft SEA.

6-28 Even as to industrial maintenance coatings, many users will not apply two-component systems, nor hire professionals to apply them, because of the complexity and expense thereof.

6-29 The assertion in the Draft SEA (at 4-63) that manufacturers' will produce "acceptable quality low-VOC products" and "products that exhibit the desired performance characteristics" by 2005 is wholly unsupported by the record and, therefore, mere wishful thinking. The Draft SEA must analyze the possible – indeed, the highly likely – scenario that users will apply low-sheen interior odor, graffiti, and apartment paints to all kitchens, bathrooms, windows, balconies and railings.

6-30 The wide spread use of these low-quality water-borne products will have substantial adverse aesthetic impacts. Such impacts include decreased durability and hide capacity as well as an inability to produce sheen.

6-31 An alternative scenario will be the failure to apply paints to substrates. All one has to do is go to any impoverished community or residence and judge the aesthetics of unpainted structures.

6-32 A final likely scenario is where property owners switch from paint to other types of substrate protection. Such a switch will detract from a diverse environment.

B. HEALTH & SAFETY

6-33 If all substrates were painted with the low-quality, coatings contemplated by the proposed amendments, the health and safety benefits provided by paints today would be severly degraded. The concerns voiced by representatives of MWD, Cal

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6-33 cont. Trans and PDCA discussed above would only be exacerbated by the 2005 limits.

If all substrates were left unpainted, all such benefits would be eliminated.

6-34 Alternatively, if all substrates were to be protected by non-paint products, certain health and safety benefits would be impaired.

C. MISCELLANEOUS IMPACTS

6-35 If other surface finishing materials (e.g., stucco, vinyl, aluminum, tile, plastic, paneling, or wall covering) replace paint, society will bear various other ecological burdens associated therewith: Other forms of pollution will increase, and material and energy resources will be needlessly wasted.

For example, wall coverings are applied with adhesives containing organic compounds. Many such materials are manufactured in processes emitting NO_x.

VI. ALTERNATIVES

6-36 The Draft SEA (at 5-1 to 5-5) improperly dismisses as "infeasible" alternative approaches which are, in fact, feasible.

6-37 SCAQMD asserts (at 5-2) that exemptions for low volatility compounds (glycols) "is not appropriate for paints." This makes no sense, as EPA and ARB have exempted products from regulation containing the very same compounds.

6-38 SCAQMD also rejects (at 5-3 to 5-4) reactivity-based controls. This is clearly feasible. Congress mandates that EPA regulate consumer products on a reactivity-adjusted basis. The Draft SEA concedes that ARB "required speciation profiles on all coatings included in the 1998 CARB Survey," and that the "results . . . are still under evaluation." It is feasible — in fact, required — to use those results.

6-39 The Draft SEA also states (at 5-5) that seasonal regulation is "infeasible due to . . . lack of enforceability." SCAQMD proposes to regulate painting practices in Rule 1113(d)(7). If it is feasible to enforce such mandates, it is feasible to enforce seasonal prohibitions.

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6-40 The Draft SEA ignores the most obvious alternative of mandating limits which require reformulation, but not substitution, such as those in EPA's regulation. This would have the supplemental benefits of avoiding preemption and promoting federal-state consistency. The failure to include and analyze such alternatives is fatal under CEQA.

Conclusion

6-41 The staff "must specifically respond" to each of the above comments about the serious failures of the Draft SEA. *Dunn-Edwards Corp. v. SCAQMD*, 19 Cal.App.4th 519, 534 (1993). If any such comments are rejected, the responses "must particularly set forth in detail the reasons" therefor. *Id.* The staff is bound under CEQA to provide board members with information on the above missing impacts and alternatives "which enables them to make a decision which intelligently takes account of the environmental consequences. [Citations]" *Id.*

6-42 SCAQMD proposes to ban virtually all glossy enamels and undercoaters made, sold, and used in the basin today. Obviously, any project that revolutionary is going to have massive environmental impacts. As shown above, the Draft SEA fails to think about those impacts, as mandated by CEQA.

Very truly yours,

William M. Smiland/mme

William M. Smiland

WMS/mme

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COMMENT LETTER #6
Smiland & Khachigian
April 21, 1999

6-1 The commentator appears to infer that non-compliant coatings will be eliminated as a result of adopting and implementing PAR 1113, but no compliant coatings will become available. Based upon the number of future compliant coatings currently available (see Table F-1 in response to comment #2-1) and the fact that there is substantial time available to develop compliant coatings, especially for the final July 1, 2006 compliance date, it is likely that existing coatings may be reformulated using currently available resin technologies or completely new compliant coatings will be developed.

Further, the SCAQMD will conduct and complete a technology assessment one-year prior to the interim and final VOC content limits becoming effective. The technology assessment will evaluate the availability and feasibility of compliant coatings. Since the language regarding technology assessments is included in PAR 1113, the SCAQMD will be required to conduct this assessment and consider revising the VOC content limits or extend the compliance dates depending on the results of the technology assessment. This continuing evaluation requirement assures that future limits will always be based on the current state of coating technology.

6-2 The commentator states, "[T]he Draft SEA blithely concludes (at 1-1) that 'the proposed amendments will not generate any significant adverse environmental impacts.'" The statement cited by the commentator is a statement in Chapter 1 that summarizes the conclusions of the extensive analysis contained in Chapter 4 of the Draft SEA. The conclusions of insignificance are based on extensive surveys of currently available low and zero-VOC coatings, as well as extensive analyses of specific issues identified by staff and raised by the public and the affected industry in comments on the NOP/IS prepared for PAR 1113. Consequently, the conclusion that PAR 1113 is not expected to generate significant adverse environmental impacts is based on substantial evidence and is not a blithe conclusion as asserted by the commentator. The commentator is also referred to the environmental analyses in Chapter 4 of the Final SEA for PAR 1113, as well as the analysis of the relative merits of each of the proposed project alternatives contained in Chapter 5.

6-3 The commentator asserts that the SCAQMD's "rosy scenario" that complaint coatings will be available in the interim and final compliance years is eclipsed by two more likely scenarios: low organic compound substitution and finally non-paint substitutes. The SCAQMD is not clear what the commentator means when it says "low organic compounds." The SCAQMD assumes for the purposes of this comment the commentator is referring to low-VOC coatings when it says "low organic compounds." The SCAQMD will proceed on this assumption in answering this comment and subsequent comments using the terminology "low organic compounds."

In any event, the SCAQMD disagrees with the commentator's contentions. As part of the environmental impacts analysis for PAR 1113, the SCAQMD conducted an exhaustive and comprehensive analysis of currently available low-VOC compliant coatings as well as conventional coatings. The SCAQMD's analysis reviewed hundreds of product data sheets and compared the VOC content, percent solids by volume, coverage, adhesion, durability, pot life, shelf life, gloss, and drying time (see the tables in Appendix D and the related summary tables in Chapter 4 of the Final SEA) of affected coating categories. The SCAQMD has found through its investigation of these product data sheets that there are commercially available compliant coatings that meet the interim and final VOC content limits of PAR 1113. According to the product data sheets analyzed by the SCAQMD, many of these compliant coatings perform comparable to conventional coatings in a variety of applications (see Appendix D and summary tables in Chapter 4 of the Final SEA). Furthermore, the results from the NTS study show that compliant interim (2002) coatings perform overall as well as conventional coatings. While some of the compliant final (2006) compliant coatings have some application shortcomings compared to conventional coatings, PAR 1113 provides an additional seven years to give coating formulators the necessary time to reformulate coatings to meet the final VOC content limits. This additional time is consistent with the information provided by various resin manufactures and coating manufacturers that it takes five to seven years for new product development. Therefore, based on the SCAQMD's product data sheet analysis coupled with the results from the NTS study, substitution of low-VOC compliant coatings with higher-VOC coatings is not anticipated from the implementation of PAR 1113.

Furthermore, even if there is some limited substitution due to the implementation of PAR 1113, overall emission reductions will still be achieved. The SCAQMD has analyzed four probable substitution scenarios including the substitution of an IM coating by a rust preventative coating. This analysis reveals that even under a "worst-case" where several types of coatings are being substituted with higher-VOC coatings in large numbers PAR 1113 still achieves overall emission reductions. The commentator is referred to Chapter 4 of the Final SEA.

In regards to commentator's assertion that eventually users will switch to non-paint substitutes due to wide-spread failures associated with the use of low-VOC compliant, as stated above compliant low-VOC coatings are currently commercially available that can meet both the interim and final VOC content limits. Therefore, it is highly speculative that users will abandon paints altogether for non-paint substitutes when compliant performing coatings are available for use. Further, other than the commentator's assertion, the commentator provides no evidence that this scenario will actually occur.

It should be noted that non-paint substrates (e.g., stucco, siding, concrete, etc.) are currently used in the district. However, their use for the most part has nothing to do with the availability of compliant performing coatings, but more with user preferences (e.g., aesthetics).

6-4 The commentator incorrectly asserts that the Draft SEA for PAR 1113 ignores the following environmental impacts: (1) aesthetic impacts; (2) health and safety impacts; (3) increased reactivity impacts; (4) increased volatility impacts; (5) increased emission impacts; and (6) impacts resulting from the increased manufacture and installation of non-paint substitutes.

With regard to aesthetic impacts, response to comment 1-16 in Appendix C of the Draft SEA for PAR 1113 addressed this issue by providing a detailed response explaining why PAR 1113 was not expected to generate significant adverse aesthetic impacts. Aesthetic impacts were also addressed in the "Environmental Impacts Found Not to Be Significant" section in Chapter 4 of the Draft SEA for PAR 1113.

Health and safety impacts were discussed in detail in the "Human Health Impacts" and "Hazard Impacts" sections, respectively, in Chapter 4 of the Draft SEA for PAR 1113. Responses to written comments #1-9, #1-12, and #3-17 in Appendix C of the Draft SEA for PAR 1113 also addressed potential hazard impacts. Safety and human health issues were also addressed in the responses to written comments #1-12 and #5-5, as well as responses to oral comments #6, #7, and #8.

Potential reactivity impacts were specifically addressed in the "More Reactivity" section of Chapter 4 of the Draft SEA for PAR 1113. This topic was also extensively addressed in response to comment #1b-1 in Appendix C of the Draft SEA for PAR 1113. In addition, the reasons for rejecting a reactivity-based alternative were addressed in Chapter 5 of the Draft SEA.

Volatility impacts were addressed in the "Low Vapor Pressure" section of Chapter 4 in the Draft SEA for PAR 1113. This topic was also addressed in response to comment #1c-12 in Appendix C of the Draft SEA.

The industry issue regarding potential increases in VOC emissions from PAR 1113 were addressed in the following sections of Chapter 4: "More Thickness," "Illegal Thinning," "More Priming," "More Topcoats," "More Touch-ups and Repair Work," "More Frequent Recoating," and "Substitution."

The industry issue regarding substitution was specifically addressed in the "Substitution" section of Chapter 4 of the Draft and Final SEA for PAR 1113.

6-5 While staff may have suggested a 45-day comment period in December 1998, staff subsequently determined that a 30-day review period was adequate given the lack of any significant environmental impacts.

6-6 The data provided is noted.

6-7 The commentator is referred to the responses to comments #2-1 and #6-1.

6-8 The commentator alleges that the Draft SEA's "omnibus fashion" of analysis does not separately analyze the impacts associated with the interim and final VOC content limits. The commentator states that the SCAQMD must carry out a limit-specific and category-specific analysis for all five environmental topics analyzed by the SCAQMD. The SCAQMD disagrees with the commentator's assertion that a limit-specific and category-specific analysis is required for each environmental topic in order to adequately analyzed the impacts from PAR 1113. The type and level of analysis that is required is dependent on the environmental topic under review.

For example, in the context of air quality impacts, Tables 4-2 and 4-3 of the Draft and Final SEA reveal that the SCAQMD thoroughly analyzed the limit-specific and category-specific performance characteristics of affected coatings. The results of this analysis revealed that compliant coatings are currently commercially available to meet the interim and final VOC content limits. This analysis served as the basis for analyzing the industry's eight issues (e.g., more thickness, more thinning, more priming, more topcoats, more touch-up and repair, more frequent recoating, more substitution, and more reactivity) as well as the other environmental areas analyzed by the SCAQMD.

For the remaining environmental topics (e.g., water resources, public services, transportation/circulation, solid/hazardous waste, hazards, and human health), a quantitative and/or qualitative limit-specific or category-specific analysis was all that was required to thoroughly analyze the impacts associated with PAR 1113. For quantitative limit-specific impacts analyses, the commentator is referred to Tables 4-5 (water demand), 4-6 (water quality), and 4-8 (solid waste) of the Draft and Final SEA. For quantitative category-specific analyses based on coating technology, the reader is referred to Tables 4-7 (public services and hazards) and 4-8 – 4-12a (human health) of the Draft and Final SEA. For a qualitative analyses based on category-specific analyses based on coating technology, the reader is referred to Water Resources, Public Services, Transportation/Circulation, Solid/Hazardous Waste, Hazards, And Human Health sections of the Draft and Final SEA.

As demonstrated by the thoroughness of these analyses, the SCAQMD has substantially meet its requirements under CEQA in determining the environmental impacts associated with PAR 1113. Accordingly, the SCAQMD concluded that the implementation of PAR 1113 would not result in significant environmental impacts in any environmental topic.

6-9 SCAQMD staff does not concur with the commentator's assertion that significant aesthetic impacts will occur. The commentator does not explicitly state in what way significant aesthetic impacts would occur. He implies that they may occur to those "who apply it [paint] to their own houses." First, industrial maintenance coatings are not typically used for residential use or for use in painting the outside of buildings, although some nonflat coatings may be used for a structure's exterior trim. In spite of this, based upon information on currently available compliant products, performance characteristics of existing and reformulated products should be sufficient to meet the weathering impacts on outdoor structures. This is particularly true in light of the fact that the rule contains sufficient time for research and development of AIM coatings in addition to those that are currently available (see also response to comment #3-4).

6-10 The SCAQMD recognizes that coating manufacturers that do not have compliant products will need to reformulate their existing coatings. However, numerous manufacturers, including the commentator's company, have numerous compliant coatings that meet the proposed interim and final compliance coatings now. Also, the proposed modified Averaging Provision would provide the coating manufacturers with the flexibility to retain certain lines of noncompliant products, and focus their research and development efforts on fewer lines of products. The commentator is also referred to responses to comments #1-1 and #2-1. See also Table 3-1 of the Final SEA.

6-11 The SCAQMD concurs with the commentator's statement that the Draft SEA contains an exhaustive discussion of the health and safety (e.g., hazards, and human health) impacts from certain constituents of coatings. However, the SCAQMD disagrees with the commentator's assertion that the SCAQMD did not analyze the hazards and human health impacts from replacement coatings. In order to determine the hazards and human health impacts associated with low-VOC complaint replacement coatings, the SCAQMD determined the individual constituents (e.g., solvents) of the coatings and then compared them to conventional solvents. This comparison provided the SCAQMD with an indication of the incremental impacts associated with the use of low-VOC complaint replacement coatings. As shown in the Hazards Impacts and Human Health Impacts sections in Chapter 4 of the Draft and Final SEA, the SCAQMD has found that no significant hazards and human health impacts are associated with low-VOC compliant replacement coatings.

The commentator cites testimony given by CalTrans, MWD, and PDCA at the December 9, 1998 Public Worskshop regarding their concerns with the availability of IM coatings that meet the proposed amendments. In particular, the commentator highlights Caltrans' testimony noting that they are currently happy with a 250 g/l IM coating used for steel structures but it is concerned with the availability of IM coatings to meet the final limits. This statement corroborates the SCAQMD's analysis that low-VOC compliant coatings are commercially available to meet the interim VOC content limits (07/01/02). PAR 1113 sets the interim VOC content limit for IM coatings at 250 g/l. In the context of the final VOC content limits, the IM coating limit drops to 100 g/l in 07/01/06. Based on the SCAQMD's product data sheet analysis of hundreds of coatings, low-VOC IM coatings are currently available that can meet the final limit. However, the results of the NTS study indicate that some of these compliant coatings may have some application problems. For this reason, the SCAQMD has given coating formulators seven years to reformulate their coatings. This time period is consistent with input received from resin manufacturers and coating formulators that it takes five to seven years to reformulate coatings to make it commercially available based on emerging resin technology. PAR 1113 contains a technology assessment provision whereby approximately one year prior to the interim and final compliance dates staff will perform a technology assessment of the availability of compliant coatings. If compliant IM coatings are unavailable by the completion of the technology assessment to meet the final limit, the SCAQMD will report back to the Governing Board as to the appropriateness of maintaining or delaying the existing VOC content limits.

6-12 With regard to reactivity of solvent-based coatings the commentator is referred to the response to comment #3-4.

6-13 With regard to a reactivity based rule, the commentator is referred to the responses to comments #3-4 and #4-1. It should be noted that methanol, relative to Rule 1170, was considered a promising alternative clean fuel, especially for mobile sources, because of its potential as a NOx control strategy and, therefore, an ozone control strategy, not because it may or may not be less reactive than gasoline.

6-14 The commentator indicates that the best scientific evidence strongly suggests that glycol compounds prevalent in compliant water-borne coatings are more reactive than mineral spirits prevalent in solvent-borne coatings. The commentator asserts that the SCAQMD ignores this data. The SCAQMD has not ignored the fact the different solvents have different reactivities. Nor does the SCAQMD dispute the fact that different VOCs have different reactivities. Furthermore, the SCAQMD is not opposed to the use of VOC reactivity control strategy as evidenced by the inclusion of rule language in PAR 1113 to commit the SCAQMD to assess the reactivity of architectural coatings during technology assessments. However, given the state of science in this field and the fact that several studies are currently being undertaken to refine reactivity numbers for architectural coating solvents as well as the future building of an ozone reaction chamber, the SCAQMD agrees with the EPA that it is more prudent to utilize a mass VOC emissions control strategy at this time. In its 1995 Report to Congress entitled "*Study of Volatile Organic Compound Emissions From Consumer and Commercial Products*," the EPA concluded, "To be most effective, ozone control strategies ideally should be based not only on mass VOC and NOx emissions but should consider the relative photochemical reactivity of individual species, the VOC-to-NOx ratios prevalent in specific airsheds, and other factors which could work together to minimize the formation of ozone with adverse impacts. Reactivity data on VOC, especially those compounds used to formulate consumer products and commercial products, is extremely limited. Better data, which can be obtained only at great expense, is needed if the EPA is to consider relative photochemical reactivity in any VOC control strategy. In the meantime, a practical approach is to act on the basis of mass VOC emissions." Thus, until more comprehensive VOC reactivity studies are completed that yield more refined speciation profiles for architectural coatings, the SCAQMD will continue to use a mass VOC control strategy. In fact, Dr. Carter himself has expressed the need for more study to be done to determine the reactivity of various compounds. In furtherance of that effort, he is currently conducting a study for CARB that will further evaluate and refine the atmospheric potential of selected VOCs (e.g., glycol ethers) emitted from consumer products and industrial sources, which includes chemical classes used in architectural. The SCAQMD welcomes any new scientific data that industry can provide to aid the SCAQMD in moving from a mass VOC emissions reduction strategy to a control strategy based on VOC reactivity.

It should be noted that the commentator's assertion that glycol compounds are prevalent in compliant water-borne coatings is not consistent with the SCAQMD's findings. Because many glycol compounds are considered hazardous air pollutants, many coating formulators are replacing these compounds with less hazardous compounds. The Censullo report, which is intended to upgrade the species profiles for a number of sources within the general categories of industrial and architectural coating operations, reported that the four most common solvents in the 52 randomly chosen water-borne coatings (flats and non-flats) were: texanol (found in 37/52); propylene glycol (31/52); diethylene glycol butyl ether (23/52); and ethylene glycol (14/52). It appears from this information that the use of solvents such as texanol in water-borne coating formulations, is prevalent today and should continue into the future with the eventual replacement of more hazardous glycol compounds. Therefore, since the trend appears to be the replacement of glycol compounds in compliant water-borne systems with less hazardous compounds, it is even more prudent to wait until better scientific reactivity data is available.

6-15 The commentator contends that since it is known which compliant coatings will be used to meet the interim limit (2002) there is no reason why the SCAQMD should not analyze the relative reactivities of the compliant coatings compared to conventional coatings. The commentator's contention blurs the real issue associated with the use of a reactivity-based regulatory approach. The SCAQMD agrees with the commentator that it is well known that compliant coatings are commercially available to meet the PAR 1113 VOC content limits. However, based on the SCAQMD's research to date, the science of reactivity analysis has not reached the level of sophistication that it can accurately predict how various VOCs in coatings upon release in the atmosphere contribute to ozone formation through reaction with other compounds. Therefore, it is premature at this time to rely on a reactivity-based approach for PAR 1113. The commentator is referred to responses to comments #3-4 and #6-14.

6-16 The commentator cites CEQA Guidelines §15144 regarding disclosure requirements. The SCAQMD is aware of CEQA requirements for preparing environmental analyses. Further, the SEA for PAR 1113 complies with all relevant CEQA requirements.

The commentator then cites CEQA case law, Laurel Heights Improvement Assn. v. Regents of University of California, 47 C.3d 376 (1988), implying that the Draft SEA for PAR 1113 has not analyzed potential adverse environmental impacts and relies on "bare conclusions." The Draft SEA for PAR 1113 does not rely on "bare conclusions," but relies on extensive data surveys and analyses of potential adverse impacts to a number of environmental topics. As noted in response to comment #6-2, the conclusion that PAR 1113 is not expected to generate significant adverse environmental impacts is based on substantial evidence and does not rely on, "A study conducted after approval of a project..." The commentator is also referred to the environmental analyses in Chapter 4 of the Final SEA for PAR 1113.

6-17 The commentator alleges that because glycol compounds have low evaporation rates they do not disperse widely enough nor remain in the atmosphere long enough to contribute significantly to ozone formation. The commentator further alleges that the Draft SEA fails to analyze this issue. The commentator's allegation contradicts its implications in other comments that because glycol compounds as compared to mineral spirits prevalent in conventional coatings have higher reactivities they contribute more to ozone formation. Thus, it is unclear exactly what point the commentator is trying to make.

In any event, the commentator is incorrect in alleging that the SCAQMD has not considered a low-volatility approach for PAR 1113. In Chapter 5 of the Draft and Final SEA, although not specifically focusing on glycol compounds, the SCAQMD extensively discussed the feasibility of such an approach in the broad context of architectural coatings.. The SCAQMD noted that although CARB has included a low vapor pressure (LVP) exemption in their Consumer Products regulation, CARB staff indicates that the LVP exemption was placed into the proposed regulation because of specific additives found in consumer products, such as surfactants, paraffins, and other heavier compounds that are typically washed away before they evaporate into the air. Furthermore, CARB has indicated that the LVP exemption was not intended to apply to solvents used in AIM coatings, since these solvents are intended to evaporate into the air. For that reason, CARB has not provided an LVP exemption in their aerosol paints rule.

Additionally, USEPA also did not include an LVP exemption in the National AIM Rule and USEPA staff has communicated to the SCAQMD that they do not support an LVP exemption for the architectural coatings rule. USEPA staff concludes that any VOCs (non-exempt solvent species) that are included in the approved test method are considered to be part of the overall VOC content of the coating, and should not be exempted. Using the currently approved test method, testing of coatings containing some of the LVP solvents includes identifying some LVP solvents as VOCs. As a result, because a LVP exemption is not appropriate for paints, a low vapor pressure alternative is considered to be infeasible.

6-18 The commentator asserts that as a result of PAR 1113 low-VOC compliant coatings will be substituted by higher-VOC coatings resulting in increased emissions. The commentator alleges that 250 g/l IM and 350 g/l rust preventative (RP) coatings will be substituted for low-VOC compliant coatings. As part of the environmental impacts analysis for PAR 1113, the SCAQMD conducted an extensive analysis of currently available low VOC coatings and conventional coatings. This analysis evaluated hundreds of coatings from approximately 40 manufacturers and considered the following coating characteristics: VOC content, percent solids by volume, coverage, adhesion, durability, pot life, shelf life, gloss, and drying time (see the tables in Appendix D and the related summary tables in Chapter 4 of the Final SEA). The SCAQMD's analysis of resin manufacturers and coating formulators product data sheets indicates that overall low-VOC compliant coatings had comparable performance characteristics to conventional coatings. Additionally, the conclusion was further corroborated by the NTS study. The results of the NTS study also indicate, however, that some of the compliant coatings may have some application problems, more so for the final compliance limits. As a result, the SCAQMD has given coating formulators seven years to reformulate their coatings to correct coating application problems. This time period is consistent with input received from resin manufacturers and coating formulators that it takes five to seven years to reformulate coatings to make it commercially available based on emerging resin technology. PAR 1113 contains a technology assessment provision whereby approximately one year prior to the interim and final compliance dates staff will perform a technology assessment of the availability of compliant coatings. If compliant IM coatings are unavailable by the completion of the technology assessment to meet the final limit, the

SCAQMD will report back to the Governing Board as to the appropriateness of maintaining the existing VOC content limits. Accordingly, substitution of low-VOC compliant coatings with higher-VOC coatings is not anticipated from the implementation of PAR 1113.

Furthermore, even if there is some limited substitution due to the implementation of PAR 1113, as alleged by the commentator, overall emission reductions will still be achieved. The SCAQMD has analyzed four probable substitution scenarios including the substitution scenarios suggested by the commentator. This analysis reveals that even under a "worst-case" where several types of coatings are being substituted with higher-VOC coatings in large numbers PAR 1113 still achieves overall emission reductions. The commentator is referred to Chapter 4 of the Final SEA.

6-19 The commentator asserts that the SCAQMD's five reasons why substitution will not occur are obviously false. The strongly disagrees with the commentator's assertion and refers the commentator to responses to comments #5-22 - #5-25.

6-20 Regarding the SCAQMD's review of resin manufacturer's and coating formulator's product data sheets and the preliminary results from the NTS study the commentator is referred to response to comment #2-1. The commentator is also referred to responses to comments #5-22 - #5-25 and #6-18 regarding potential substitution of low-VOC compliant coatings by higher-VOC coatings.

6-21 The commentator is referred to responses to comments #5-22, #5-23, and #6-18.

6-22 The commentator is referred to responses to comments #5-23 and #6-18.

6-23 The commentator is referred to responses to comments #5-24 and #6-18.

6-24 The commentator is referred to responses to comments #5-25 and #6-18.

6-25 The commentator is referred to responses to comments #2-1 and #6-1.

6-26 The commentator is referred to response to comment #6-8.

6-27 It is assumed that the commentator is implying that the performance characteristics of compliant low VOC coatings will be inferior to conventional coatings, so substitutions such as those identified by the commentator will need to be used. Staff reviewed coating product data sheets (see the tables in Appendix D and the relevant summary tables in Chapter 4) to obtain durability information for low VOC coatings and conventional coatings. Based upon a comparison of the coating product information sheets, staff concluded that low VOC coatings have durability characteristics comparable to conventional coatings. Further, based on current availability of low and zero-VOC AIM coatings for a wide range of applications, it is anticipated that even more compliant coatings will be available by the 2002 and 2006 compliance dates (see also response to comment #3-4 regarding availability of low and zero-VOC compliant coatings).

Staff has found both single-component and two-component low- and zero-VOC coatings for a variety of uses. These can be brushed, rolled or sprayed using conventional coating gun technologies. However, staff recognizes that some fast-cure zero-VOC technologies require using plural spray technology. In any event, it is anticipated that even greater numbers of one- and two component AIM coatings will be available by the 2006 compliance date. Even industry has stated that research and development of new coating systems takes only three to five years.

Based on staff research of the product data sheets, there are, generally, a substantial number of low VOC coatings that are currently available, that have performance characteristics comparable to conventional coatings. In addition, there is no indication that non-paint protective products such as brick, siding, and tiles would be substitutes for either interior or exterior flat coatings. Even if they were substituted for painted surfaces, this practice of using non-paint protective products is currently a common practice. See also the air quality analysis in Chapter 4 regarding substitution.

6-28 Staff has found numerous single-component and two-component, zero-VOC industrial maintenance coatings, with pot lives of up to three hours (see the tables in Appendix D). These can be brushed, rolled or sprayed using conventional coating gun technologies. However, staff recognizes that some fast-cure zero-VOC technologies require using plural spray technology. However, the increased cost of the application equipment is more than offset by the faster dry time and quicker turnaround time associated with the fast cure coatings. It should be noted that two-component coating systems are already used in certain applications, e.g., industrial maintenance applications, although such equipment requires training to achieve desired coating characteristics. The final compliance date for the 100 g/l VOC limit for industrial maintenance coatings is July 1, 2006, which provides adequate time for contractor training with the increased use of two-component coatings.

6-29 The commentator alleges that the SCAQMD's assertion that acceptable low-VOC quality coatings will be available that exhibit desired performance characteristics is wholly unsupported by the record. The SCAQMD has thoroughly analyzed the availability as well as the quality of commercially available coatings that meet the interim and final VOC content limits of PAR 1113. The SCAQMD has comprehensively analyzed hundreds of resin manufacturer's and coating formulator's product data sheets. The SCAQMD's analysis of these product data sheets indicates that overall low-VOC compliant coatings had comparable performance characteristics to conventional coatings for both the interim and final VOC content limits.

Regarding the SCAQMD's review of resin manufacturer's and coating formulator's product data sheets and the results from the NTS study the commentator is referred to response to comment #2-1. The commentator is also referred to responses to comments #5-22 - #5-25 and #6-18 regarding potential substitution of low-VOC compliant coatings by higher-VOC coatings.

6-30 The commentator is referred to the responses to comments #6-9 and #6-27.

6-31 With regard to the durability of low and zero-VOC the commentator is referred to the response to comment #6-29. The commentator is referred to the responses to comments #6-9 and #6-27. The fact that an "impoverished community" may or may not have unpainted structures is unrelated to the quality of low VOC coatings, especially since relatively high VOC coatings are currently available, but is instead related more to socioeconomic factors.

6-32 With regard to using non-paint substrates the commentator is referred to the response to comment #6-27.

6-33 The commentator contends that if all substrates were painted with low-quality paint, health and safety (e.g., hazards and human health) benefits offered by paints would be severely compromised. This statement is contrary to the SCAQMD's findings concerning commercially available low-VOC compliant coatings. Based on the SCAQMD's research, investigation, and analysis, low-VOC compliant are currently commercially available to meet the interim and final VOC content limits. Furthermore, the SCAQMD has included extended compliance deadlines to allow coating formulators additional time to correct potential coating application problems associated with the final VOC content limits. Accordingly, since low-VOC compliant coatings are commercially available and additional time is provided for reformulation, the SCAQMD does not expect significant hazards and human health impacts from the implementation of PAR 1113.

The commentator is referred to response to comment #2-1 regarding the SCAQMD's review of resin manufacturer's and coating formulator's product data sheets and the results from the NTS study. The commentator is also referred to responses to comments #6-8 and #6-11 regarding hazard and human health impacts from the use of low-VOC compliant coatings.

6-34 The commentator contends that if all substrates were protected with non-paint substrates, health and safety (e.g., hazards and human health) benefits offered by paints would be impaired. Since the commentator does not explain how non-paint substrates would impair the hazard and human health benefits of paint it difficult to understand the commentator's contention. In any event, this statement is contrary to the SCAQMD's findings concerning commercially available low-VOC compliant coatings. Regarding the SCAQMD's review of resin manufacturer's and coating formulator's product data sheets and the preliminary results from the NTS, study the commentator is referred to response to comment #2-1. The commentator is also referred to responses to comments #6-8 and #6-11 regarding hazard and human health impacts from the use of low-VOC compliant coatings.

6-35 The commentator asserts that use of non-paint protective coatings will generate VOC emissions from adhesive products or NOx emissions from the manufacture of adhesives. First, the SCAQMD disagrees with this assertion because it is anticipated that compliant AIM coatings will be available in the future (see response to comment #3-4).

Even if it were true that the use of adhesives increases as a result of implementing PAR 1113, the SCAQMD strictly regulates the VOC content of adhesives in Rule 1168 – Adhesive Applications. Based upon the requirements in Rule 1168, depending on the adhesive application, use of compliant adhesives would have no effect on VOC emissions or could potentially reduce VOC emissions to a certain extent compared to the existing setting because the VOC content requirements are generally equivalent or less than the VOC content requirements currently required for AIM coatings.

Further, even if the adhesive manufacturing process involved some type of combustion process such as a boiler or heater, NOx emissions associated with adhesive production would not create significant adverse air quality impacts for the following reasons. Any new, modified, or relocated combustion equipment in the district is subject to Regulation XIII –New Source Review. This regulation strictly regulates NOx emissions from combustion equipment by requiring: that emissions comply with the lowest achievable emissions rate; installation of best achievable control technology (BACT), and emissions offsets if emissions are greater than one pound per day. Equipment not subject to Regulation XIII would most likely be subject to Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters, which establishes stringent NOx control requirements.

6-36 Consistent with CEQA Guidelines §15126.6(c) the SCAQMD has described the reasons for rejecting a number of alternatives in Chapter 5. This comment does not explain why the commentator assumes that the alternatives rejected as infeasible are feasible.

6-37 With regard to rejecting a low volatility-based alternative the commentator is referred to the response to comment #3-4. See also Chapter 5 of the Final SEA for PAR 1113.

6-38 With regard to rejecting a reactivity-based alternative the commentator is referred to the response to comment #3-4. See also Chapter 5 of the Final SEA for PAR 1113.

6-39 SCAQMD staff has evaluated a seasonal regulation alternative that would allow architectural coatings with VOC content limits higher than those contained in PAR 1113 and rejected it as an infeasible alternative for the following reason. Based on discussions with industry, it has been suggested that this alternative may be infeasible because it may be difficult for coatings distributors to manage architectural coating stocks to ensure that only compliant coatings are sold during the high ozone season. As a result, this alternative is rejected as infeasible. See also the discussion in Chapter 5 of "Alternatives rejected as infeasible."

In addition to the issues identified by staff, one commentator (see comment letter #3) expressed concerns with a seasonal alternative because of the additional costs to coatings retailers of changing their stocks up to four times per year. Another concern raised by this commentator was the SCAQMD's ability to enforce a seasonal alternative.

6-40 Many low- and zero-VOC coatings are currently available for use, and are manufactured by small and large coating manufacturers. Thus, the SCAQMD has no basis to believe that significant amount of substitution will occur as a result of the proposed amendments. The expected approach for meeting future VOC content limits is through reformulation. Significant substitution is not likely to occur because uses for various replacement coatings are different and have different performance characteristics. For example, the proposed substitutes have limited specific uses, they do not provide the same aesthetic appeal, and some of the proposed substitutes would be cost prohibitive. Even if there is some limited substitution due to the implementation of PAR 1113, emission reductions will still be achieved.

6-41 The SCAQMD is aware of the requirements to respond to comments on the draft CEQA document. This appendix, Appendix F, provides detailed and extensive responses to all comments received on the Draft SEA for PAR 1113. Further, the SCAQMD disagrees with the commentator's assertion that the Draft SEA for PAR 1113 does not include a comprehensive analysis of potential adverse impacts from implementing PAR 1113 (see the responses to comments #6-2 and #6-16). Finally, the Final SEA for PAR 1113, including responses to comments on the Draft SEA (Appendix F), will be provided to all Board members prior to the public hearing for PAR 1113.

6-42 The commentator appears to infer that non-compliant coatings will be eliminated as a result of adopting and implementing PAR 1113, but no compliant coatings will become available. Based upon the number of future compliant coatings currently available (see Table F-1 in response to comment #2-1) and the fact that there is substantial time available to develop compliant coatings, especially for the final July 1, 2006 compliance date, it is likely that existing coatings may be reformulated using currently available resin technologies or completely new compliant coatings will be developed.

Further, the SCAQMD will conduct and complete a technology assessment one-year prior to the interim and final VOC content limits becoming effective. The technology assessment will evaluate the availability and feasibility of compliant coatings. Since the language regarding technology assessments is included in PAR 1113, the SCAQMD will be required to revise the VOC content limits or extend the compliance dates depending on the results of the technology assessment. This continuing evaluation requirement assures that future limits will always be based on the current state of coating technology. Furthermore, if during the technology assessment it is determined that changes are necessary to Rule 1113, the changes will be evaluated to determine CEQA applicability and, if necessary, a CEQA analysis will be prepared.

Based upon the above considerations, as well as the comprehensive analysis of potential adverse impacts of implementing PAR 1113 contained in Chapter 4, no significant adverse impacts were identified.

COMMENT LETTER #7

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

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April 13, 1999

Mr. Darren W. Stroud
SCAQMD Headquarters
21865 E. Copley Drive
Diamond Bar, CA 91765

RE: SCAG Clearinghouse I9900112 Proposed Amended Rule 1113

Dear Mr. Stroud:

7-1

We have reviewed the above referenced document and determined that it is not regionally significant per Areawide Clearinghouse criteria. Therefore, the project does not warrant clearinghouse comments at this time. Should there be a change in the scope of the project, we would appreciate the opportunity to review and comment at that time.

A description of the project was published in the **April 1, 1999** Intergovernmental Review Report for public review and comment.

The project title and SCAG Clearinghouse number should be used in all correspondence with SCAG concerning this project. Correspondence should be sent to the attention of the Clearinghouse Coordinator. If you have any questions, please contact me at (213) 236-1917.

Sincerely,

J. DAVID STEIN
Manager, Performance Assessment
and Implementation

JDS:lj

COMMENT LETTER #7
Southern California Association of Governments
April 13, 1999

7-1 The SCAQMD acknowledges and agrees with the commentator that PAR 1113 is not a regionally significant project. The SCAG Clearinghouse number is noted and listed on the front cover of the Final SEA.

COMMENT LETTER #7

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

COMMENT LETTER #7
Southern California Association of Governments
April 13, 1999

7-1 The SCAQMD acknowledges and agrees with the commentator that PAR 1113 is not a regionally significant project. The SCAG Clearinghouse number is I9900112.

PUBLIC CONSULTATION MEETING COMMENTS

March 31, 1999 and April 28, 1999
Public Consultation Meetings
(CEQA Comments)

The following are summaries of environmental impact-related comments received at either the March 31, 1999, or April 28, 1999 Public Consultation Meetings held for PAR 1113.

COMMENT #1: Exemptions need to be given for some categories or applications that do not perform at the lower VOC limits. Some coatings will be eliminated. These coatings protect workers around containment areas that have the possibility of an accidental release or spill.

RESPONSE #1: Please see response to comment #2-1 regarding the availability of future compliant coatings. Staff has also extended the interim compliance date to July 1, 2002, and the final compliance date to July 1, 2006.

The SCAQMD will conduct and complete a technology assessment one-year prior to the interim and final VOC content limits becoming effective. The technology assessment will evaluate the availability and feasibility of compliant coatings. Since the language regarding technology assessments is included in PAR 1113, the SCAQMD will be required to revise the VOC content limits or extend the compliance dates depending on the results of the technology assessment. This continuing evaluation requirement assures that future limits will always be based on the current state of coating technology. Furthermore, if during the technology assessment it is changes are necessary to Rule 1113, the changes will be evaluated to determine CEQA applicability and, if necessary, a CEQA analysis will be prepared.

Additionally, the SCAQMD has added three new categories (i.e., Essential Public Service Coating; Bituminous Roof Coatings; and Recycled Flats and Nonflats) to further define the differences in coating applications and the ability to achieve a certain compliance limit.

COMMENT #2: Conclusions in the Draft SEA are largely derived from marketing information and are not based on the NTS Study. The conclusions should be based on the study.

RESPONSE #2: Please refer to the response to comment #2-1.

COMMENT #3: Paints products are the largest amount of household hazardous waste generated. More of an effort needs to be made to recycle paints.

RESPONSE #3: The fact that paint products constitute a large portion of household hazardous wastes is an existing problem and is not expected to increase substantially as a result of implementing PAR 1113. In certain controlled situations, coatings applied in spray booths for example, excess water-based coatings can often be reused compared to solvent-based coatings that need to be disposed of properly. To the extent that PAR 1113 increases the usage of water-based coatings, disposal impacts could be reduced slightly.

It should also be noted that some jurisdictions that collect paints as part of household hazardous waste programs may mix together compatible and usable coatings for painting out graffiti.

For additional information please refer to the response to comment #5-27.

COMMENT #4: A concern was raised regarding the availability of compliant coatings that are suitable for wastewater treatment facilities.

RESPONSE #4: Staff has analyzed the use of the lower-VOC technologies for a variety of uses. The low- and zero-VOC industrial maintenance coatings are recommended for a variety of industrial uses, including but not limited to refineries, chemical facilities, food processing, pulp and paper manufacturing, bridge, pipeline, and wastewater treatment facilities. Staff can provide information on currently available coatings that could be used for wastewater treatment facilities. Nonetheless, staff has added an Essential Public Services
Coating category with an interim VOC limit of 340 g/l, effective July 1, 2002,which is higher than that of the general IM coating category.

COMMENT #5: Concerned with the cross-media impacts from the disposal of waterborne coatings.

RESPONSE #5: Please refer to the responses to comments #5-27 and #6-8.

COMMENT #6: Multi-component coatings are not appropriate for residential use. Specific NIOSH equipment should be used with 2-component systems. A residential user does not understand this. Homeowners wear dust-preventive masks instead of masks that prevent organic vapors.

RESPONSE #6: It should be noted that two-component coating systems are already used in certain applications, e.g., industrial maintenance applications and such equipment requires training to achieve desired coating characteristics. Industrial maintenance coatings are typically not used by, or available to the residential do-it-yourselfer. In addition, such coating may not be used in residential settings.

COMMENT #7: The ecological burdens of Rule 1113 amendments depend upon the performance of the substitutes.

RESPONSE #7: The SCAQMD comprehensively analyzed potential adverse impacts from adopting and implementing PAR 1113. This analysis, contained in Chapter 4 of the Draft SEA, concluded that PAR 1113 is not anticipated to generate significant adverse environmental impacts. Consequently, no "ecological burdens" are expected as a result of implementing PAR 1113.

COMMENT #8: Concerns were expressed regarding a proposed prohibition on spraying two-component IM coatings containing diisocyanates (Rule 1113 §(d)(8)). The prohibition was proposed due to preliminary data suggesting adverse health effects from exposure to diisocyantes. Many speakers noted, however, that the chemistry of these systems make it unlikely that diisocyanate compounds would be emitted during the spraying process.

RESPONSE #8: The SCAQMD evaluated this issue by conducting a thorough technical literature search as well as contacting experts in the field. From this further research, the SCAQMD obtained a study conducted by Mobay (now Bayer) that provided monitoring results from the spraying of two a component IM system containing HDI poly-isocynate during the painting of a bridge and a chemical manufacturing plant. The results from the study are summarized below in Table F-8.

The results of SCAQMD's evaluation is the conclusion that a prohibition on the spraying of two-component IM coatings containing diisocyanates is not necessary. Further, since PAR 1113 restricts the use of IM coatings to IM settings, the public's exposure to these coatings are minimized. Accordingly, the SCAQMD does not expect that the spraying of two-component low VOC IM systems containing diisocyanates will expose the general public to acute significant adverse human health impacts.

TABLE F-8
SHORT-TERM ACUTE EXPOSURE FROM THE SPRAYING OF A TWO-COMPONENT IM SYSTEM CONTAINING HDI POLY-ISOCYNATE

Fleming Park Bridge, Neville Island, Pennsylvania		
Spraying Two-Component Polyurethane Intermediate Coat		
Sample Site	**Monomeric HDI (ppb)**	**HDI Poly-isocyanate (mg/m^3)**
Painter #1	2.4	2.5
Painter #2	1.9	2.2
Panter #3	4.1	5.2
Downwind 50 ft*	0.5	<0.02
Deck	0.6	0.09
Under the Bridge	<0.4	0.02
TLV/STEL	**20.0****	**1.0*****
Spraying Two-Component Polyurethane Top Coat		
Sample Site	**Monomeric HDI (ppb)**	**HDI Poly-isocyanate (mg/m^3)**
Painter #1	4.6	1.65
Painter #2	4.0	1.81
Mixer/Supervisor	0.7	0.03
Deck	<0.06	<0.03
In Truck	<0.06	<0.03
Under the Bridge 25 ft*	<0.07	<0.03
Under the Bridge 25 ft*	<0.07	<0.07
Under the Bridge 15 ft*	1.6	0.8
Downwind 50 ft*	1.3	0.8
Mixing Area	0.8	0.04
TLV/STEL	**20.0****	**1.0*****

TABLE F-8 (CONCLUDED)
SHORT-TERM ACUTE EXPOSURE
FROM THE SPRAYING OF A TWO COMPONENT
IM SYSTEM CONTAINING HDI POLY-ISOCYNATE

Mobay New Martinsville, WV Plant

Spraying Two-Component Polyurethane Top Coat on Chemical Storage Tank

Sample Site	Monomeric HDI (ppb)	HDI Poly-isocyanate (mg/m^3)
Painter	0.9	0.14
Painter Helper	<0.2	<.0.02
Downwind 25 ft* (North)	<0.2	<.0.02
Above Painters	<0.2	<.0.02
East 25 ft*	<0.2	<.0.02
Downwind 50 ft*	<0.2	<.0.02
West 15 ft*	<0.2	<.0.02
Upwind 15 ft*	<0.3	<.0.03
TLV/STEL	**20.0****	**1.0*****

Spraying Two-Component Polyurethane Top Coat on Waste Treatment Tank

Sample Site	Monomeric HDI (ppb)	HDI Poly-isocyanate (mg/m^3)
Painter	0.9	0.16
Upwind 15 ft*	0.9	<0.04
Downwind 15 ft*	1.4	0.24
Downwind 35 ft*	<0.4	<0.04
STEL	**20.0****	**1.0*****

* Distances are average number of feet from spray gun.

**.ACGIH has established a Threshold Level Value as an eight hour Time-Weighted Average (TLV-TWA) for HDI of 5 parts per billion (ppb). Although Permissible Exposure Limits (PELs) have been established for several diisocyanate compounds, federal OSHA has not established on for HDI. Mobay (now Bayer) endorses the ACGIH's Short Term Exposure Limit (STEL) of 20 ppb for HDI. This concentration should not be exceeded not even for brief periods.

*** ACGIH and federal OSHA have not TLV-TWA or a PEL for HDI poly-isocyanates. However, Mobay (now Bayer) recommends a TLV-TWA of 0.5 mg/m^3 for HDI poly-isocyanates. Mobay (now Bayer) also recommends a short STEL (averaged over 15 minutes) of 1 mg/m^3 for HDI poly-isocyanates.

APPENDIX G

ANNUAL STATUS REPORTS ON RULE 1113 (YEARS 2000, 2001, 2002)

YEAR 2000

Please go to http://www.aqmd.gov/hb/000730a.html for the Annual Status Report (Year 2000)

YEAR 2001

Please go to http://www.aqmd.gov/hb/010726a.html for the Annual Status Report (Year 2001)

YEAR 2002

Please go to http://www.aqmd.gov/hb/020723a.html for the Annual Status Report (Year 2002)

APPENDIX H

RESPONSES TO COMMENTS ON THE 2002 DRAFT SUBSEQUENT ENVIRONMENTAL ASSESSMENT

Benjamin Moore & Co. *Paints • Stains • Clear Finishes*
TECHNICAL & ADMINISTRATIVE CENTER • 360 ROUTE 206 • P O BOX 4000 • FLANDERS, NEW JERSEY 07836-4000 • (201) 927-8600 • FAX: (201) 252-2660

September 3, 2002

Dan Russell – 909 396-2333
Planning, Rule Development and Area Sources
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765

Dear Mr. Russell:

1-1 Benjamin Moore & Co. has been a participant in the National Reg/Neg which resulted in the National AIM VOC Rule and in the various work groups which commented on most stages of the current SCAQMD Rule 1113. Though out this process we have supported all proposals and recommendations of the National Paint and Coatings Association (NPCA) and we continue to do so.

1-2 In your CEQA document of 8/2/02 Appendix D you list a number of Benjamin Moore & Co. products, which you imply, validates your 1/1/03 TOS limits. In fact a number of our Tchnical Data Sheets (TDS) prove just the opposite (comments and attached web site references follow):

M58 is not a "floor coating" but an "Industrial Maintenance Traffic Marking Paint":
http://www.benjaminmoore.com/tds/1033/TDSM58A.pdf

M40 and M41 are not "floor coating's" but are an "Industrial Maintenance two component floor sealing and coating system which is "not for use by the home owner":
http://www.benjaminmoore.com/tds/1033/TDSM40A.pdf
http://www.benjaminmoore.com/tds/1033/TDSM41A.pdf

M47/M48 is not a general I/M coating but a two component Coal Tar Epoxy Black with a VOC at 318g/l for use in waste treatment facilities:
http://www.benjaminmoore.com/tds/1033/TDSM47M48A.pdf

1-3 Benjamin Moore prides itself on being a premium quality paint company. You do include a couple of our "Regal" line and other premium paint TDS's but not all. A more complete listing follows with a more accurate record of their VOC content required to make them effective, easy to use, and available in all colors of the rainbow for the premium paint home owner. As the following shows most of our premium products are compromised with the 2003 TOS and wiped out in 2006/8:

Regal AquaGlo - Nonflat
http://www.benjaminmoore.com/tds/1033/m7133303.pdf VOC 177g/l to 238g/l
Regal AquaPearl - Nonflat
http://www.benjaminmoore.com/tds/1033/m7131003.pdf VOC 136g/l to 209g/l
Regal AquaVelvet - Nonflat
http://www.benjaminmoore.com/tds/1033/m7131903.pdf VOC 80g/l to 142g/l
Regal WallSatin Flat
http://www.benjaminmoore.com/tds/1033/m7121503.pdf VOC 31g/l to 91g/l
IronClad Latex Metal & Wood Enamel - Nonflat
http://www.benjaminmoore.com/tds/1033/m7236303.pdf VOC 190g/l to 314g/l
Impervex Latex High Gloss Enamel – High Gloss Nonflat
http://www.benjaminmoore.com/tds/1033/m7130903.pdf VOC 240g/l to 256g/l
MoorGlo Latex House & Trim – Exterior Nonflat
http://www.benjaminmoore.com/tds/1033/TDS096A.pdf VOC 147g/l to 215g/l

Moore's Kitchen & Bath (322) is not an all purpose nonflat. Rather it is a fast drying paint for use in areas prone to mildew growth. It is available in white and light pastels only:
http://www.benjaminmoore.com/tds/1033/m7132200.pdf

MONTVALE NJ • NEW YORK, NY • NEWARK NJ • FLANDERS, NJ • NUTLEY, NJ • BOSTON, MA • RICHMOND VA • JACKSONVILLE FL • JOHNSTOWN NY • CHICAGO IL • ST LOUIS, MO
CLEVELAND, OH • HOUSTON TX • DALLAS, TX • BIRMINGHAM, AL • DENVER, CO • LOS ANGELES CA • SANTA CLARA CA • TORONTO ON • MONTREAL PQ • LANGLEY BC • BURLINGTON ON

Established 1883

1-4 A complete review of our TDS's found at http://www.benjaminmoore.com/ will show the Board, that 50% of our products are out of compliance with the 2003 TOS and moore than 75% are out of compliance with the 2006/8 TOS. These rules will eliminate most of our I/M Coatings, our floor paints, our varnishes, many of our sealers and stains and most of our premium quality/top line paints. Benjamin Moore & Co. requests a more complete presentation of our TDS's. In fact, they form the basis for our conviction that we need the flexibility of the NPCA proposals to remain, in California, the quality paint company we have been since 1883.

Sincerely,

BAJenkin

Barry A. Jenkin
Benjamin Moore & Co.
Regulatory Affairs
973-252-2650
barry.jenkin@benjaminmoore.com

COMMENT LETTER #1 FROM
BENJAMIN MOORE AND COMPANY

(September 3, 2002)

Response to Comment #1-1

SCAQMD staff acknowledges your participation in developing the national AIM VOC rule, which regulates the architectural coating industry, as well as your support of the proposals by the National Paint and Coating Association. The project under consideration, however, is readoption of the 1999 amendment to Rule 1113, although there have been a number of subsequent modifications to the original proposal.

Response to Comment #1-2

"Floor coatings" is a generic term for a variety of high performance coatings used in areas with abrasion as a result of foot traffic or vehicular traffic. The Technical Data Sheet (TDS) for Benjamin Moore's M58 Safety and Marking Latex describes the paint as marking traffic lanes and "designating parking spaces and other vehicular or foot traffic control markings." Thus, staff listed M58 as both a floor coating and an industrial maintenance (IM) coating in Appendix D. Because M58 is already listed in Appendix D as an "industrial maintenance coating" with a VOC coating below 100 grams per liter, the conclusion that lower VOC content limits for industrial maintenance coatings can be achieved does not change.

Typically, the floor coating system includes a primer and topcoat, or a two-component single coat coating. The users include a variety of commercial and industrial users, with some limited residential applications. The TDS for Benjamin Moore's M40 is described as "100 percent solids epoxy floor coating" and M41 is a penetrating sealer and finish coat. Whether classified as a "floor coating" or an "industrial maintenance coating", both coating systems are classified as having zero VOC content and are additional examples of coatings able to comply with future lower VOC content limits.

It is proposed that the various categories of the "industrial maintenance primers and topcoats" be collapsed into a general IM coating category, which is defined to include coatings applied to substrates exposed to water, wastewater, chemical solutions, corrosive agents, chemical fumes, chemical mixtures, etc. Typical users include oil and gas production – onshore and offshore, refineries, pulp and paper mills, water and waste treatment facilities. The M47/48 coal tar epoxy satisfies the general IM coating classification, however, staff does acknowledge that, at 318 grams per liter, the M47/48 should not be identified as under 250 grams per liter in Appendix D.

Response to Comment #1-3

The SCAQMD staff has downloaded all the TDSs available for the list of Benjamin Moore premium paint products provided and reviewed the properties of each of the products. Staff is aware that if products are not reformulated to satisfy the future lower VOC content limits, the sale of such products will not be allowed. It is recognized that new products, however, will need to be formulated to comply with future lower VOC content limits. Industry input during the development of the 1999 amendments to Rule 1113 indicated that research and development of new coatings where the resin technology is currently available takes approximately three to five years. Further, industry has indicated that if a resin technology is not currently available, research and development of new coatings takes approximately five to seven years. Based on this input from industry, the final compliance date specified in the 1999 amendments to Rule 1113, allowed at least seven years for the development of new products. Because the May 1999 amendments to Rule 1113 have already been in effect for more than three years, the expectation is that coating manufacturers have made progress in their research and development efforts of new formulations that comply with future VOC limits. Therefore, staff is proposing to maintain the same compliance schedule for the final limits adopted in May 1999.

Response to Comment #1-4

The SCAQMD staff's survey in Appendix D revealed that there are over 100 low-VOC IM coatings that comply with the original 2002 interim compliance date (now year 2003) and over 140 that comply with the 2006 final compliance date. The table in Appendix D includes some Benjamin Moore products. Because of the large number of currently available compliant coatings for both the 2003 and 2006 VOC content limit requirements and the long lead time for research and development of future compliant VOC coatings, the SCAQMD staff believes there is a firm basis supporting the PAR 1113. With regard to availability specifically of Benjamin Moore products, please refer to Response to Comment #1-3.

SENT BY: 9- 3- 2 ; 15:07 ;SMILAND & K"""""" 21389114129 396 3324;# 1/ 3

SMILAND & KHACHIGIAN
601 West Fifth Street, 7th Floor
Los Angeles, California 90071-2004

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Date: **September 3, 2002**

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TO:	Mr. Michael Krauss
FIRM/COMPANY:	South Coast AQMD
FACSIMILE NO.:	(909) 396-3324
FROM:	William M. Smiland, Esq.
RE:	*Proposed Amendment to Rule 1113 - CEQA*
ATTACHED:	Letter dated September 3, 2002

THE ORIGINAL HAS BEEN SENT TO YOU BY MAIL

SPECIAL INSTRUCTIONS/MESSAGE:

WMS/mme
Our ref.: 2526 5

SENT BY: 9- 3- 2 ; 15:07 ;SMILAND & K'''''''' 21389114149 396 3324;# 2/ 3

LAW OFFICES OF
SMILAND KHACHIGIAN

WILLIAM M. SMILAND
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IVAN L. TETHER
STACY L. SOKOL
EDWARD C. GIERMANN
WM. CHASE AHDERS
DANIEL S. KIPPEN

September 3, 2002

DUPLICATE BY FACSIMILE (909) 396-3324

Mr. Michael Krauss
South Coast AQMD
21865 East Copley Drive
Diamond Bar, CA 91765-4182

Re: Proposed Amendment to Rule 1113 - CEQA

Dear Mr. Krauss:

Introduction

This responds to your notice, dated August 2, 2002, relating to the draft SEA covering the referenced project.

Enclosed are copies of the opening and reply briefs we filed on behalf of our clients in the recent appeal invalidating the 1999 amendments. They and the evidence in the prior administrative record, to which they refer, are incorporated herein by reference.

2-1

Necessity

On May 14, 1999, the board formally directed staff to study the volatility of glycols in water-borne paints, including non-flats and industrial maintenance coatings. To the best of our knowledge, this directive has not been followed. The board also directed staff to study the relativity of mineral spirits in solvent-borne paints, and we are not aware that this directive has been honored, either.

2-2

The draft SEA acknowledges (at 4-21) that glycols are "low volatility" compounds. Yet it opines that the coatings (except low-odor paints and two-component industrial maintenance systems) should be prohibited. It merely states, without citing evidence, that unspecified inorganic compounds in unspecified paints "do and are intended to evaporate."

Emeritus CHARLES H. CHASE
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SENT BY: 9- 3- 2 ; 15:07 ;SMILAND & K''''''' 21389114129 396 3324;# 3/ 3

Mr. Michael Krauss
September 3, 2002
Page 2

2-3 The draft SEA discusses (at 4-17 to 4-21) the reactivity of mineral spirits based on early and preliminary data. It notes the potential of low reactivity various investigations of the 1990's. Yet it notes, without explanation, that it would "not be prudent" to learn the facts before adopting the prohibitions.

Our views in this issue are set forth at pages 25-35 of our opening brief and at pages 22-35 of our reply.

Aesthetics

2-4 The draft SEA finds (at 4-66 to 4-67) that aesthetic impacts will not be significant. It states that the 2003 and 2006 compliance dates should ensure sufficient "time" for unspecified manufacturers to reformulate unspecified products exhibiting desired characteristics. No evidence for the finding is included.

Our views on this impact are set forth at pages 50-56 of our opening brief and pages 49-52 of our reply brief.

Corrosion and Sanitation

2-5 The draft SEA appears not to address in any significant way the health and safety impacts of the amendments, including increased corrosion and decreased sanitation.

Our views on these impacts are described at pages 50-51 and 57-59 of our opening brief and at pages 49-50 and 52-54 of our reply brief.

Conclusion

2-6 We respectfully submit that South Coast AQMD must cure the above violations of CEQA.

Certain legal defects in the draft staff report are being addressed in a letter to its authors submitted concurrently herewith.

Still other issues will be addressed in response to anticipated draft economic impact and federal law analyses.

Very truly yours,

William M. Smiland

William M. Smiland

COMMENT LETTER #2 FROM SMILAND AND KHACHIGIAN

(September 3, 2002)

Response to Comment #2-1

The briefs attached to comment letter #2 have been incorporated into the administrative record, as have the SCAQMD's responding brief, regarding readoption of the 1999 amendments to Rule 1113, which includes the recent modifications.

The issue of reactivity and availability of solvent species has been a topic of research for the past several years by the Reactivity Research Working Group (RRWG), composed of industry groups, interested researchers, the EPA and other regulatory agencies. However, all studies conducted to date result in high levels of uncertainty, especially for solvent species with low volatility, which are also the major focus of the availability studies. The RRWG, as well as the paint industry, has identified the need for a new, state-of-the-art, atmospheric chamber to be developed to conduct additional assessments in an attempt to reduce the uncertainties of reactivity values for the solvent species, including those with low vapor pressure. In October 1999, the SCAQMD co-sponsored a US/German Ozone/Fine Particle Science and EPA/UCR Environmental Chamber Workshop to design and develop the new environmental chamber study at U.C. Riverside. The workshop included discussions on the state of the science related to ozone and fine particulate formation, as well as identification of additional studies needed for reactivity.

In response to this need, Dunn Edwards Paint Company has assisted with funding for a construction of a new atmospheric chamber at the College of Engineering - Center for Environmental Research and Technology (CE-CERT) in Riverside, California. The construction of this chamber, first of its kind in terms of technology, has experienced significant delays. To date, the chamber is still undergoing some final quality assurance before actual testing is initiated. The SCAQMD staff has been closely monitoring the progress of this chamber and is considering contracting with CE-CERT to conduct some studies upon completion of the chamber. Dr. William Carter, Principal Investigator, plans to further study the reactivity and availability of both glycols and mineral spirits, as well as other solvent species. The following are a few of the studies currently being conducted by CE-CERT:

- Development of a Next-Generation Environmental Chamber Facility For Chemical Mechanism and VOC Reactivity Evaluation – 6/1/99 to 6/30/2003
- Evaluation of Atmospheric Impacts of Selected Coatings VOC Emissions – 6/30/01 – 6/29/2004 (relative to reactivity and availability)
- Development and Evaluation of a Gas-Phase Atmospheric Reaction Mechanism for Low-NOx Conditions – 12/01/2001 – 11/30/2004

In addition, the SCAQMD in June 2002 adopted an ambitious three-year Advanced Air Pollution Research Plan. This research plan contains a proposal to research reactivity-based pollution control approaches. The SCAQMD is actively seeking co-sponsors for this as well as other projects included in the Research Plan. Since the commentator appears to be very interested in the reactivity assessment, we would encourage him to consider co-funding these long-term and costly studies in the near future.

The original staff report and supporting information included a thorough analysis of the reactivity of mineral spirits and concluded that mineral spirits are considered to be reactive, and the overall reactivity varies depending on the specific formulations of mineral spirits. Dr. William Carter has continued his assessment of mineral spirits and published a report entitled Investigation of the Ozone Formation Potentials of Selected Branched Alkanes and Mineral Spirits Samples, on July 11, 2002. This study concludes that an all alkane mineral spirit formulation is less reactive than mineral spirits with 8 percent aromatics and alkenes. Furthermore, the study concludes that this may have a reduced impact on maximum 8-hour average ozone levels than on peak ozone levels, especially in scenarios with relatively low NOx conditions, which is not the case for South Coast Air Basin. This study, or any other study, does not conclude that mineral spirits are less reactive or more reactive than solvents found in waterborne formulations of paints.

Staff encourages the commentator to join the various groups in funding future efforts to continue assessing the science of reactivity and increasing the confidence in the data collected through atmospheric chamber studies.

Response to Comment #2-2

The commentator alleges that because glycol compounds have low evaporation rates they do not disperse widely enough or remain in the atmosphere long enough to contribute significantly to ozone formation. The SCAQMD disagrees. The commentator further alleges that the Draft SEA fails to analyze this issue. The commentator is incorrect in alleging that the SCAQMD has not considered a low-volatility approach for PAR 1113. In Chapter 5 of the Draft SEA, although not specifically focusing on glycol compounds, the SCAQMD extensively discussed the feasibility of such an approach in the broad context of architectural coatings. The SCAQMD noted that although CARB has included a low vapor pressure (LVP) exemption in their Consumer Products regulation, CARB staff indicates that the LVP exemption was placed into the proposed regulation because of specific additives found in consumer products, such as surfactants, paraffins, and other heavier compounds that are typically washed away before they evaporate into the air. Furthermore, CARB has indicated that the LVP exemption was not intended to apply to solvents used in AIM coatings, since these solvents are intended to evaporate into the air. For that reason, CARB has not provided an LVP exemption in their aerosol paints rule or in their suggested control measure for architectural coatings adopted in June 2000.

Similarly, USEPA also did not include an LVP exemption in the National AIM Rule and USEPA staff has communicated to the SCAQMD that they do not support an LVP exemption for the architectural coatings rule. USEPA staff concludes that any VOCs (non-exempt solvent species) that are included in the approved test method are considered to be part of the overall VOC content of the coating, and should not be exempted. Using the currently approved test method, testing of coatings containing some of the LVP solvents includes identifying some LVP solvents as VOCs. As a result, because there is currently little science to support an LVP exemption for paints, the SCAQMD does not consider a low vapor pressure alternative to be feasible. See also Response 2-3.

Response to Comment #2-3

As implied by the commentator, there is a detailed discussion in the Draft SEA, pages 4-17 through 4-21, regarding why a reactivity-based regulatory approach has been rejected. The following summarizes that discussion. As discussed in Chapter 4 of the Draft SEA, the science of VOC reactivity is still in its early stages, with more comprehensive studies being conducted to refine VOC reactivity data. Until these studies are completed, the SCAQMD agrees with the EPA that it would not be prudent to implement a control strategy for VOC emissions based principally on VOC reactivity at this time. In its 1995 Report to Congress entitled "Study of Volatile Organic Compound Emissions From Consumer and Commercial Products," the EPA concluded, "To be most effective, ozone control strategies ideally should be based not only on mass VOC and NOx emissions but should consider the relative photochemical reactivity of individual species, the VOC-to-NOx ratios prevalent in specific airsheds, and other factors which could work together to minimize the formation of ozone with adverse impacts. Reactivity data on VOC, especially those compounds used to formulate consumer products and commercial products, is extremely limited. Better data, which can be obtained only at great expense, is needed if the EPA is to consider relative photochemical reactivity in any VOC control strategy. In the meantime, a practical approach is to act on the basis of mass VOC emissions." Thus, until more comprehensive VOC reactivity studies are completed that yield more refined speciation profiles for architectural coatings, the SCAQMD will continue to use a mass VOC control strategy. The SCAQMD welcomes any new scientific data that industry can provide to aid the SCAQMD in making a VOC reactivity-based strategy a viable control option.

In general, the relative contribution of reactivity of a specific VOC under different atmospheric conditions needs to be better understood before data can be used for policy-making. Dr. William Carter recently received funding for a three million dollar ozone chamber, which will include studying VOC reactivity. The SCAQMD is also contributing funding to this ozone chamber. The results of future studies may result in sufficient information to include reactivity-based control provisions in Rule 1113 and other coatings rules.

Some specific problems (scientific issues) associated with reactivity-based regulations include:

- Assumptions in the current airshed models are too simplified, and do not represent airshed conditions in Basin.
- Studying the reactivity of halogenated compounds is difficult because currently there is no way to simulate reactivity under current models and chamber conditions.
- Information on the reactivity of alcohol amines indicates that there is a high degree of uncertainty associated with the reactivity of these compounds and additional study is necessary.
- The reactivity of aromatics is still not well understood and current mechanism may not correlate well.
- Quantifying reactivity uncertainties is difficult – particularly for most compounds found in architectural coatings.

- The existing atmospheric chamber is not for studying reactivity in low-NOx environments.

As stated in the Draft SEA (page 4-20), the SCAQMD will continue to monitor and participate in all studies related to enhanced reactivity data of VOC species, including directly participating in studies pertaining to reactivity of solvents in architectural coatings. See also Response to Comment #2-1.

The trial court (Orange County Superior Court, Case Nos. 810488, 810492, 810699) dismissed these claims and the appellate court did not address these issues. Our views are in pages 88 to 91 of the "Respondent's Opposition Brief to Appellants' Opening Briefs" (Fourth Appellate District, Division Three, Court of Appeals of the State of California, National Paint and Coatings Association v. South Coast Air Quality Management District). Hardcopies of this document is available from the CEQA Section at the SCAQMD and requests can be made via e-mail at ceqa_admin@aqmd.gov or calling Lori Inga at (909) 396-3109.

Response to Comment #2-4

The SCAQMD does not concur with the commentator's opinion that no evidence is included the Draft SEA regarding the finding that the aesthetic impact from the proposed project will be not significant. Based upon information on currently available compliant products, performance characteristics of existing and reformulated products are expected to be sufficient to withstand environmental effects on coatings, such as weathering. It is assumed that the commentator is implying that the performance characteristics of compliant low VOC coatings will be inferior to conventional coatings. Staff reviewed coating product data sheets (see the tables in Appendix D) to obtain durability information for low VOC coatings and conventional coatings. Based upon a comparison of the coating product information sheets, staff concluded that low VOC coatings have durability characteristics comparable to conventional coatings. Further, based on current availability of low and zero-VOC AIM coatings for a wide range of applications, it is anticipated that even more compliant coatings will be available by the 2003 and 2006 compliance dates. Finally, contrary to the commentator's opinion, there is no evidence to suggest that reformulated coatings at lower VOC content limits will not exhibit desired aesthetic characteristics. In fact, based on the comparable durability of low VOC coatings compared to traditional high VOC coatings, aesthetics characteristics are expected to be similar.

The trial court (Orange County Superior Court, Case Nos. 810488, 810492, 810699) dismissed these claims and the appellate court did not address these issues. Our views are in pages 65 to 66 of the "Respondent's Opposition Brief to Appellants' Opening Briefs" (Fourth Appellate District, Division Three, Court of Appeals of the State of California, National Paint and Coatings Association v. South Coast Air Quality Management District). Hardcopies of this document is available from the CEQA Section at the SCAQMD and requests can be made via e-mail at ceqa_admin@aqmd.gov or calling Lori Inga at (909) 396-3109.

Response to Comment #2-5

The commentator has indicated that if all substrates were painted with reformulated coatings, health and safety impacts from increased corrosion and decreased sanitation would be severely compromised. This statement is contrary to the SCAQMD's findings concerning commercially available low-VOC compliant coatings. Based on the SCAQMD's research, investigation, and analysis, low-VOC compliant coatings are currently commercially available to meet the interim and final VOC content limits. Furthermore, the compliance deadlines have been expanded for the final VOC content limits to allow coating formulators additional time to correct potential coating application problems. Accordingly, since low-VOC compliant coatings are commercially available and additional time is provided for reformulation, the SCAQMD does not expect significant hazards and human health impacts from the implementation of PAR 1113.

The trial court (Orange County Superior Court, Case Nos. 810488, 810492, 810699) dismissed these claims and the appellate court did not address these issues. Our views are in page 63 to 64 of the "Respondent's Opposition Brief to Appellants' Opening Briefs" (Fourth Appellate District, Division Three, Court of Appeals of the State of California, National Paint and Coatings Association v. South Coast Air Quality Management District). Hardcopies of this document is available from the CEQA Section at the SCAQMD and requests can be made via e-mail at ceqa_admin@aqmd.gov or calling Lori Inga at (909) 396-3109.

Response to Comment #2-6

The SCAQMD disagrees with the commentator's implication that the environmental analysis contained in the Draft SEA is consistent and does not violate CEQA. The Draft SEA complies with all relevant CEQA requirements. The 2002 EA relies in part on the 1999 amendments but also incorporates subsequent study results that support the conclusion that compliant paints are available and perform well. Accordingly, suggested adverse effects from use of such paints, or substitution of higher VOC paints, will not occur.

Michael Krause

From: Mundhenk,Chris [cmundhenk@mwdh2o.com]
Sent: Wednesday, September 04, 2002 10:05 AM
To: Michael Krause
Cc: Kaufman,Carol Y; Shane,Delaine W
Subject: Proposed Amendments to Rule 1113: Architectural Coatings

Rule 1113
sponse Letter - MW

Dear Mr. Krause,

Attached please find Metropolitan's comment letter regarding the proposed amendments to Rule 1113. If you have any problems opening the document, please contact me at (213) 217-7658.

Sincerely,
Chris Mundhenk
Environmental Planning Team
Metropolitan Water District of Southern California

<<Rule 1113 Response Letter - MWD.pdf>>

1

MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Executive Office

September 4, 2002

Mr. Laki Tisopulos
Assistant Deputy Executive Officer
Planning, Rule Development, & Area Sources
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, California 91765-4182

Dear Mr. Tisopulos:

Draft Subsequent Environmental Assessment
for the Proposed Amendments to Rule 1113 – Architectural Coatings

The Metropolitan Water District of Southern California (Metropolitan) has received the Draft Subsequent Environmental Assessment (EA) for the Proposed Amendments to Rule 1113 – Architectural Coatings that was prepared by the South Coast Air Quality Management District (SCAQMD). The comments herein represent Metropolitan's response to your proposed amended rule as a potentially affected public agency.

3-1 Metropolitan is requesting that the text on page 3-22 be revised to reflect that Metropolitan distributes wholesale water obtained from the Colorado River and Northern California through 26 member agencies (cities, municipal water districts, and a county water authority). Also, Metropolitan provides more than one-half of the water used by approximately 17 million people in six counties covering the 5,200 square-mile coastal plain of Southern California. To provide this service, Metropolitan operates an extensive system of water conveyances, reservoirs, and water treatment plants.

3-2 Metropolitan continues to be very supportive of the SCAQMD's goal of reducing volatile organic compound (VOC) emissions from the application of architectural/industrial maintenance (AIM) coatings, and of the efforts to promote coatings reformulation towards zero-VOC coatings. As an end-user of AIM coatings on critical components of our water delivery system, Metropolitan provided input into the 1998/1999 rulemaking activities which culminated in the adoption of the May 14, 1999 amendments. The amendments provided the Essential Public Service Agencies (EPSAs) with an interim 340 g/l VOC limit for industrial maintenance coatings until July 2006 (at which time the universal 100 g/l industrial maintenance coating VOC limit would apply), and

700 N. Alameda Street, Los Angeles, California 90012 • Mailing Address: Box 54153, Los Angeles, California 90054-0153 • Telephone (213) 217-6000

Re: Draft Proposed Amendments to Rule 1113
September 4, 2002
Page 2

3-2 cont. established an EPSA technology assessment. These provisions of the original 1999 amendment, which are proposed to be continued in this readoption process, will enable Metropolitan to continue meeting our water delivery contractual responsibilities.

3-3 Relative to the proposed amended rule, Metropolitan concurs with the definition of "Essential Public Service Coating" provided in the August 6, 2002 SCAQMD Preliminary Draft Staff Report for Proposed Amended Rule 1113 – Architectural Coatings. Grammatical changes have been made to reflect the original intent of the rule (as written, it is understood that water treatment is considered part of the distribution system). Metropolitan supports the adoption of this specified language in the final SCAQMD Board package. The definition is as follows:

> "ESSENTIAL PUBLIC SERVICE COATING is a protective (functional) industrial maintenance coating applied to components of transmission or distribution systems of power, municipal wastewater, and water; and bridges and other roadways during repair and maintenance procedures."

We appreciate the opportunity to provide input to your planning process and we look forward to receiving future environmental documentation on this project. If we can be of further assistance, please contact Ms. Carol Kaufman of the Environmental Support Services at (213) 217-6207.

Very truly yours,

FOR Laura J. Simonek
Manager, Asset Management
and Facilities Planning Unit

CYK/CDM

cc: Lee Lockie, SCAQMD
Naveen Berry, SCAQMD
Dave De Boer, SCAQMD

COMMENT LETTER #3 FROM
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

(September 4, 2002)

Response to Comment #3-1

SCAQMD appreciates your comments. Staff has updated Chapter 3 of the Final SEA to include your clarifications of MWD's extensive water system.

Response to Comment #3-2

The public agencies that provide essential services to the public were provided with a slightly higher interim VOC limit to provide an adequate amount of time to complete their technical assessment, as required by the Public Resources Code on contracting and purchasing. This technical assessment, as required by the public contracting procedure, requires a phased approach over a five-year period before a product can be added to their specifications. Private companies did not offer such information or limitations in their contracting or purchasing requirements. Nonetheless, the SCAQMD has amended it initial proposal and eliminated the separated Essential Public Service Coating Category, and extended the interim VOC limit implementation date to January 1, 2004 to align the requirement with CARB's State Control Measure (SCM).

Response to Comment #3-3

Refer to Response to Comment #3-2.

Michael Krause

From:	Jim Sell [JSell@paint.org]
Sent:	Wednesday, September 04, 2002 2:05 PM
To:	Michael Krause
Subject:	FW: Comments

#126643 v1 - 2 EQA Comment r... NPCA Recommend TOS for 1113 dr... Definitions second draft 9-3-0... Rational Specialty Primer Addi...

> Dear Mr. Krause: Attached are the comments from the National Paint and
> Coatings Association concerning the draft Subsequent Environmental
> Assessment in support of the PAR Rule 1113.
>
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> <<#126643 v1 - 2 CEQA Comment revisions.doc>>
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> <<NPCA Recommend TOS for 1113 draft4.doc>> <<Definitions second draft
> 9-3-02.doc>> <<Rational Specialty Primer Additional Information.doc>>
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September 4, 2002

Mr. Michael Krause
CEQA --AIM Coatings Rule
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, California 91765

Dear Mr. Krause:

4-1

The National Paint and Coatings Association (NPCA) is providing the following comments on the SCAQMD's Draft Subsequent Environmental Assessment (SEA) relating to the proposed readoption of revisions to Rule 1113 that were originally adopted in May 1999, as well as a number of revisions to the originally adopted rule.

The Draft SEA is largely identical to the Final SEA that was released by SCAQMD on May 4, 1999, shortly before the amendments were originally adopted. NPCA filed extensive comments on the original Draft SEA in April 1999, and we incorporate those comments, as we believe that they remain relevant. As we argued in the litigation over the 1999 amendments, we believe that the SCAQMD's responses to our comments have failed to acknowledge the consequences of the rulemaking, so that the Governing Board and public were not fully apprised of the impacts of the proposed rule. This shortcoming continues with the current Draft SEA. However, this comment letter will focus on issues beyond those raised in our April 1999 comments that relate to this particular proposed rulemaking, as well as additional information that has come to light in the last three years.

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1. Time for Public Comment

We believe that the time for public comment on the Draft SEA is insufficient under the circumstances. While SCAQMD may only be legally obligated to provide 30 days, the time period afforded—from August 4 until September 4—is insufficient. The Draft was released at the height of the summer vacation season, and comments on this voluminous document encompassing a large number of coatings categories are due two days after Labor Day. As was noted by some of the workshop participants, there are a number of errors in the staff's analysis of product data sheets supporting the staff's conclusion that "compliant" products are available, and more time is necessary for a complete and thoughtful review. Industry was quite unprepared for the new rulemaking process, especially where SCAQMD had petitioned the Court of Appeal for rehearing, and the Supreme Court for review, of the decision vacating the 1999 rule amendments. We request that additional time be given for public comment. If there is a serious misunderstanding by the staff concerning the appropriateness and/or the limitations of the products they are relying upon to reach their conclusions, the accuracy of the analysis is seriously compromised.

4-3

2. Interim and Final Limits

We believe that it will be helpful to divide the analysis of impacts between the proposed 2003 and 2006 limits. Because SCAQMD attorneys argued in the litigation over the 1999 amendments that NPCA had allegedly never identified which limits it believed were infeasible, we are segregating our comments between the interim and final limits. NPCA is proposing an industry consensus table of standards for the 2003 limits, which we have attached as Appendix A. While NPCA agrees that these proposed alternative standards are technologically "feasible," this is not to say that there are no

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4-3 cont. performance issues involved with these coatings, or that these issues are minor. Our testimony and comments throughout this process including the briefs in our litigation have registered our deep concerns with several of the proposed 2003 limits. We will discuss some of those issues below, and why we believe that these performance issues create potential impacts that have either not been addressed at all, or not been adequately addressed, in the Draft SEA.

4-4 However, as stated in our testimony at the August 21 workshop, the 2006 limits represent not just serious performance tradeoffs, but as a practical matter are technological impossible to meet, except with the most exotic coatings that are completely ill-suited for many applications. We will discuss the final limits separately below.

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3. The Project Definition

An EIR must contain an accurate and consistent project description, as that description is the entire basis of an informative, legally adequate document. *County of Inyo v. City of Los Angeles*, 71 Cal.App.3d 185, 192 (1977); CEQA Guidelines, § 15124. We have serious objections to the description of the "project" in the Draft SEA, insofar as the scope of the project has been used to minimize the potential impacts that are created when acceptably-performing coatings are no longer available for particular applications, and to avoid the use of mitigating provisions and alternatives that would have no significant impacts or loss of emissions.

4-6 First, the interim and final limits rely upon dramatically different coatings technologies to achieve incremental emissions decreases in the same coatings categories. When the Air Resources Board adopted its Suggested Control Measure in 2000, which followed in large part the original Rule 1113 interim limits for these categories, those interim limits were in fact the entire project. Here, the Draft SEA has included in essence two separate rulemakings into one "project".

4-7 Second, while the "project" consists of all of the revisions that the SCAQMD has proposed to Rule 1113, each proposed category of coatings affected by the proposed amendment is itself a discrete "project." There is no apparent relationship among the categories subject to the rulemaking, other than that they are "coatings." An adequate identification and analysis of the potential environmental and other impacts of the proposed amendments requires a category-by category (and indeed application-by-application) analysis of the feasibility of lowering the VOC limits for each coatings category and of the impacts from such reductions. As NPCA asserted in the litigation over the 1999 amendments, by using a "project" description that lumped otherwise unrelated individual "projects" together, the SEA improperly avoids claims of environmental impacts of discrete issues by arguing that the rule would obtain a "net benefit" of VOC reduction from all regulated categories.

4-8 Unless the interim and final limits are related (and they are not), and unless any two or more coatings categories are related with regard to potential impacts (and they are not in large part), then the proposed amendments cannot be analyzed as one "project" for the purpose of determining the significance of impacts. Otherwise, we believe the document misleads the Board and the public by obfuscating significant impacts created by one coatings limit, by offsetting unrelated benefits from another. For example, if the "project" were a new electric rail line and a ban of gasoline-powered cars, then one could argue that the increased emissions from the generation of electricity for the rail line was offset by the reduced emissions from the cars. If, however, the project were a rail line and a ban of gasoline-powered lawnmowers, then the reductions in emissions from

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4-8 cont. lawnmowers could not compensate for the increased emissions for electricity generation, because they are completely unrelated. The same is true of coatings. Emissions reductions obtained by low-VOC nonflat paints in consumer house paint has no relationship to potential emissions increases due to product failure and/or more frequent repainting of industrial maintenance coatings used for corrosion control.

Therefore, in order to comply with CEQA, each of the proposed VOC limits must be separately analyzed for potential environmental and other impacts, and separately analyzed for interim and final limits.

3. The 2003 Limits

a. General Technical Information

4-9 The CEQA analysis discusses the involvement of industry representatives in developing and reviewing technical tests and evaluations of coatings technology to determine the availability of adequate coatings for the 2003 limits. Unfortunately, as industry representatives have consistently pointed out orally and in writing (including the August 21st workshop and in comments on yearly staff reports), industry's input has often been ignored. In this connection staff should review the comments of industry representatives concerning staff's annual AIM coatings technology reports and those made at the workshop. These comments have included:

- 4-10 The absence of field application tests for coatings (including the abandoned NTS field study);
- 4-11 Improper handling of test panels (storage in boxes for six months which did not allow for coatings cure in an exposed environment);
- 4-12 Application of coatings exclusively with draw down bars, thus precluding conclusions about real world applications with spray guns or brushes;
- 4-13 There was a change in the VOC reporting method for the KTA-Tator study. It was originally based on actual measured VOC, and changed to the PDS documented VOC.
- 4-14 The KTA-Tator report contains findings that do not support a conclusion that the products tested met the definitions of the product class to which they purportedly belonged. There was no evidence that non-flat high gloss products were tested (missing initial gloss measurements, and exposure gloss measurements support the fact that nothing was tested in this class). Any testing should have verified that products first meet the requirements of the test protocol for their particular coatings categories before any evaluations of their properties are done.

4-15 The real world application issue is a major one, both in the failure to apply materials in the field and in not using real world application techniques. It is in this area—how a coating is actually applied under real world conditions—where the majority of failure issues arise. The KTA-Tator analysis is completely at variance with how a paint manufacturer would compare coatings, and as a result gives misleading conclusions, as noted by industry comments.

4-16 Staff has "answered" these concerns by asserting that it anticipated that there might not be a consensus among the industry representatives concerning the results of the

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4-16 cont.

tests and evaluations and their implications. This demonstrates that staff misunderstands the purpose of such tests and evaluations. The purpose is to provide a reasoned decision of potential benefits and trade-offs, in the face of peer reviewed criticism, with all aspects of the evaluation being identified to the decisionmaker. In this connection, staff's annual reports to the Board have not detailed any of industry's concerns, including those registered by members of the Technical Advisory Committee. In this connection the staff's practice continues to violate one of the principles about which the Court of Appeal was most concerned—that decisionmakers be given all of the information available, "...to force decisionmakers to have a 'real confrontation' with the sometimes ugly consequences of a yes vote."

4-17

SCAQMD has claimed that the NTS Study supports the claim that no significant impacts will occur due to the interim limits. As with the KTA-Tator study, the NTS results relied on by staff when the May 1999 revisions were passed were only from a laboratory study. Moreover, over the objection of industry, the staff did not test the performance of coatings under real-world application conditions prior to the District making conclusions about product performance in May 1999. The NTS data could not answer the questions raised by industry, or respond to the data provided by public agencies, which was glossed over when they received their special exemption.

4-18

The post May 1999 field exposure tests conducted under the NTS included a comparison of corrosion resistance for IM coatings that showed that the only coating that had blistering without surface scribe is a water-based product (significant because corrosion penetrated the film itself rather than through intentional scribing of the film to expose metal). The Draft SEA does not address the potentially significant impact of product failure in the industrial maintenance setting (in which rust preventative products cannot be used), or the effect of increasing emissions by more coatings use, more frequent recoating, and/or substitution with rust preventative or other coatings.

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With respect to nonflat and quick dry coatings, NTS demonstrated that high-VOC coatings outperform low- and zero-VOC coatings in the key areas of: Application Properties, Film Appearance; Wet and Dry Film Properties. Application properties include level and flow of the coating, crucial to the uniformity of the film. Waterborne coatings dried faster than high-VOC solvent borne coatings, but this could create problems if a coating must be applied in relatively cool and/or humid conditions, under which the waterborne coating would take longer to dry. Additionally, the faster dry time implies "less open" time in which the applied material remains sufficiently "wet edged" to allow brush strokes into it to tie it into the coating being applied to the substrate next to it, i.e., lap marks. As to household chemical resistance, a critical property for nonflats and quick dries, the high-VOC systems consistently performed the best. "Block resistance," the property that prevents two coated surfaces from adhering to each other after contact (essential for opening and closing coated windows and doors) is a key coating property which was tested but the NTS report has no information on it. Again, the Draft SEA fails to address these issues, much less whether they can have the effect of increasing emissions by more coatings use, more frequent recoating, and/or substitution with better-performing coatings.

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b. Industrial Maintenance and Essential Public Service Coatings.

One of the central issues we raised in the litigation concerned the special treatment afforded to public utilities, which led to an exemption from the general industrial maintenance coating in the 1999 amendments. These users were granted a special coating category—"essential public services coatings"—with a higher VOC limit

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4-20 cont. until 2006. The appellate court singled out this exemption as being of particular concern, because it served to quiet public agency complaints about the technological feasibility of the general industrial maintenance coating VOC limit. As far as we know, these concerns remain valid, and have not been addressed in the Draft SEA.

4-21 As part of the exemption, the public utilities were allowed to test compliant coatings to determine whether they would be suitable. The are currently conducting such tests and we understand they have completed a number of them. We have asked the staff to share these results with us and have been informed that staff does not have the results. It is difficult to believe that there are not at least some exchanges going on between the staff and the public utilities on this matter, which would include some indication of the technological feasibility of the general industrial maintenance coating for the uses for which the utilities were given the higher limit. Surely this information is pertinent to the decision to impose in 2003 the limit on end users of industrial maintenance coatings that are not public utilities, and staff should share this information with the Board and the public. In its absence, we can only assume that the results have not disproved the original comments of the public agencies.

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c. Chemical Storage Tanks.

The addition of a maximum of 10% oxygenated solvents in a mixture precludes using this category for gasoline containing methanol or ethanol as an additive. Due to the ban on using MTBE as an additive, these are the most commonly used additives now and are much more aggressive than MTBE. Also the addition of a PH requirement for acids would preclude the use of this category for organic fatty acids which can be as aggressive as mineral acids and so also need to be included. The Draft SEA does not address the potential impacts on this proposed limit to the chemical storage tank category, which include the unavailability of any compliant product and potential tank failures (and release of gasoline and other chemicals stored in tanks)

4-23

d. Zinc-Rich Primers

The proposed rule excludes zinc-rich industrial maintenance coatings from the category of metallic pigmented coatings. The importance of zinc-rich primers to extend the service life (corrosion protection) of industrial maintenance and new construction coating systems cannot be over stated. Based on long term actual field exposure studies it has been determined that the sacrificial protection provided by zinc-rich primers will extend the corrosion protection of coating systems for steel between 40 to 50 % when compared to barrier type primer system. Only two organic zinc-rich primers have been certified in accordance with ANSI/NSF Standard 61 for contact with drinking water, and neither meet a 250 g/l max. VOC restriction. The use of organic zinc rich primers on the interior of potable water tanks significantly extends the service life and results in lower VOC emissions due to less frequent repainting.

4-24 The May 1999 SCAQMD Staff Report has very few references to zinc-rich primers other than a mention of a water-based epoxy zinc-rich primer from Sherwin-Williams (Zinc Clad VI) with a VOC content of 48 g/l. The Sherwin William PDS for Zinc Clad VI lists the VOC content at 163 g/l. Very few organic or inorganic zinc-rich primers are available with VOC content under 250 g/l. There are water-based inorganic zinc-rich primers with less than 50g/l VOC content, but there have been many problems and lawsuits regarding the use of water-based inorganic zinc-rich primers. Dry time and intercoat adhesion problems have been the primary problems with the water-based type inorganic zinc-rich primers. In order to be successful, the metal substrate must be sand blasted and have absolutely NO contamination. Even if a worker touches the surface that

4-24 cont. point will cause a fault and will result in failure. While this may pose less of a problem in controlled environments like shop applications, it is an insurmountable barrier for in-field applications. Additional problems with such waterborne systems include the fact that they cannot be applied at lower temperatures.

4-25 Both organic and inorganic zinc-rich primers extend the service of life of coating systems for steel substrates because of their sacrificial protection properties. The overall performance properties of the lower VOC materials that are available should be severely questioned along with other limitations. The Draft SEA does not address these issues, or the potential impacts of failure and increased emissions if the higher VOC primers are no longer available.

4-26 **e. Floor Coatings**

A higher limit 250 g/l limit is needed for floor coatings, due to the lack of chemical resistant urethane flooring products that will meet the VOC limitations and have adequate performance properties. Chemical resistant urethane flooring products are used in environments where a tough, hard, chemical- and abrasion-resistant surface is needed. Its use is prevalent in aircraft hangars and automotive repair facilities where there is constant abuse from corrosive chemicals, such as jet fuel, gasoline, transmission fluid, brake fluid and other automotive and aviation chemicals. In addition to these chemicals the coatings receive a lot of abrasion and impact. The two component polyester urethane is the product of choice for these types of applications.

4-27 The technology is not currently available for two component polyester urethane products that will meet the 100 g/l limit for floor coatings. There is some newer technology available based on polyaspartic chemistry for creating 100% solids two component urethane products. This technology has some serious drawbacks related to performance in these environments. In particular, the chemical resistant is much lower, the UV resistance is lower, and there are issues related to the chemical odor of indoor applications of polyaspartic chemistry. These drawbacks are significant enough that the viability of this technology for any type of floor coating has been questioned.

4-28 SCAQMD has indicated that two component polyurethane resin technology is available for floor coatings. This technology is known to have some severe stability limitations since it is based on polyols that are aqueous polyesters which can hydrolyze over time. Hydrolysis is chemical decomposition involving the splitting of a chemical bond with the addition of water. This stability problem is physically seen as viscosity increases and a PH decreases. Indications are that the stability of these types of resins may be limited to twelve months and with only a six month stability for the finished product.

4-29 The result of keeping the limit at the 100 g/l proposal is that use of two component polyester urethane products will be banned, and the performance of flooring systems in aircraft hangars and automotive repair facilities will be greatly reduced. This could result in a shorter coating life span and in the long term could lead to even higher VOC emissions due to more frequent repainting. The Draft SEA does not recognize or address these potential impacts.

4-30 The coatings which do not meet this limit but would meet the 250 g/l limit included in the CARB SCM and in other District rules are, for the most part, waterborne systems with <u>actual</u> emissions (the VOC content on a material basis) of less than 100 g/l. For this reason, introducing a waterborne floor coating category could effectively expand

4-30 cont. the number of useful coatings available without significantly impacting VOC emissions. This alternative could lessen the potential impacts that the proposed rule creates.

f. Waterproofing Sealers

4-31 Rule 1113 does not include a generalized waterproofing sealer category. Only two types of waterproofing sealers are recognized by the rule: 1) a film forming waterproofing sealer for concrete and masonry with resistance to water, as well as having additional resistance properties (resistant against alkalis, acids, ultraviolet light, and staining) and 2) a colorless waterproofing sealer for wood substrates. However, there are many penetrating waterproofing sealers that do not fit either of these two category definitions. These include, for example, coatings that are used for multiple substrates; colored waterproofing sealers for wood; and coatings that are used on masonry and concrete as a sealer for one or some but not all of the items listed in the definition – "water, alkalis, acids, ultraviolet light, and staining." None of these alternate use patterns would be recognized as waterproofing sealers under the rule

4-32 CARB agreed with industry concerns and included in the SCM a general waterproofing sealer category (instead of the wood waterproofing sealer category) defining it as follows: "Waterproofing Sealer: A coating labeled and formulated for application to a porous substrate for the primary purpose of preventing the penetration of water."

In the SCM, the limit of such general waterproofing sealers is 250 g/l. The absence of this category means that there are some waterproofing applications for which there will be no compliant products. The Draft SEA does not identify this issue, nor deal with the potential impacts of the use of noncompliant or poorly-performing products for these uses.

g. Specialty Primers

4-33 **Stain Blocking:** The definition does not take into account the data from the NTS study, which clearly showed that stain blocking properties were absent from ALL of the waterborne primers tested at any VOC; and that they were present in ALL of the solvent borne primers tested. This data was one of the reasons CARB included stain blocking as a condition qualifying a primer for the specialty primer definition and limit. In the absence of any stain blocking properties, there are potential impacts from the substitution of noncompliant products.

4-34 **Cementitious Surfaces:** The main function of a primer is to be compatible with the substrate. Maximum penetration of the vehicle is vital in order to anchor the primer successfully as well as to allow it to thoroughly stabilize the surface for the topcoat. Emulsion or latex systems are limited in the amount of substrate penetration due to the size of the polymeric material.

Also, with lowering of the VOCs for primers to 200 g/l, the coating's ability to flow, level, penetrate and maintain a wet edge is questionable. The results are holidays, dry spray particles and heavy overlapped films. The use of acetone to achieve a VOC of 200-grams per liter would further contribute to the problems of film formation and application problems, especially cobwebbing. Many materials are simply not soluble with the percentage of acetone needed to bring the VOCs down to 200 g/l.

4-35 There has been discussion of the use of new curing compounds and bond breakers that break down with ultraviolet or that are compatible with coatings. Upon contacting

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4-35 cont. the manufacturers of these materials, they all say if the coating literature says a substrate must be free of contaminants, it must be thoroughly and completely clean before the coating is applied. One of the manufacturers continued with the comment that if the bond breaker was applied in a heavy coat, sand blasting might be necessary to remove any residue on the substrate. Even with power washing the walls, there is often residue remaining on the wall. If there is failure due to the loss of adhesion of a primer, the building will need to be recoated. This creates added VOCs to the environment, from recoating of both the primer and the topcoat.

4-36 There have been many failures of waterborne coatings, both one and two-part systems being applied to either highly alkaline cementitious surfaces, or as a result of going over a previously power washed surface that contains residue of the form oils used in manufacturing the cementitious panels. The primer, and often the topcoat applied to it, peels off in large sheets, resulting in the entire building being recoated. This is not a rare occasion, but is often seen in the field. Specialty primers, manufactured for application over green, highly alkaline concrete surfaces, where there are often residual form oils, are often used after these failures occur. Without this addition to the specialty primer definition, the result may be more VOCs are emitted as the building needs to be repainted. The technology for a low VOC waterborne primer that works under these "all conditions" has not been developed, although many companies have spent much time and money to develop such a product.

4-37 One of our members recently tested waterborne coatings with many different additives over residual form oils. Five top selling water based commercial primers were tested, as well as the addition of various adhesion additives claiming to improve the adhesion over oily surfaces. In addition, enough solvent was added to a water based primer to take it to 200 g/l, as well as 350 g/l. A 350 g/l solvent borne coating was used as a control. The 350 g/l solvent borne coating exhibited very good adhesion, with one of the commercial water based primers performing as an equal. This primer was labeled at 350 g/l. The other commercial primer (also at 350 g/l) had adequate adhesion, as well as the water based primer that had 350 g/l total solvent. The other commercial water based primers, all formulated at 200 g/l failed the adhesion test. None of the additives were able to cut through the form oils, even with a 200 g/l water based product.

4-38 Another problem often seen in the field is with surfaces previously coated with silanes and siloxanes. The silanes and siloxanes work very well, but often, after three, five, or more years, there is a desire to change the appearance of the building. Latex primers or coatings will not adhere to a surface previously coated with silanes or siloxanes. Only solvent-borne primers will penetrate these hard to resurface substrates, forming a strong bond with the surface.

4-39 There are other problems often associated with tilt-up walls, as well as cured or fresh concrete or masonry. One is the high alkalinity of the substrate. Exposure of latex primers to high alkalinity conditions will result in the breakdown of the latex, causing delamination of the cured primer. This will cause the material to come off the walls. The other problem, which is part of the current definition, is the chalky surfaces. Even after power washing, many of these substrates still have excessive chalk. Water-based systems cannot penetrate these chalky surfaces, which will again result in a failure to bond the primer to the substrate. The coating system will fail, the walls will have to be reprimed and repainted. Specialty primers should also include the highly alkaline surfaces, because these are also the surfaces that will have excessive chalk.

4-40 The use of a solvent-borne primer is to provide a sound surface for many types of topcoats, including water-borne or latex system. The coverage rate for a solvent primer is

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4-40 cont. high, typically 200 to 300 square feet per gallon. In addition, by tying up chalky residue, and by penetrating form oil residue, or previously coated silane/siloxane substrates, the solvent primers actually reduce the need for recoating due to premature coating failure by adhesive failure.

4. The Final 2006 Limits

a. General Feasibility Concerns

4-41 As we have consistently noted, the final limits will require two things to happen, given the current state of coatings technology. These limits are so drastic, and the technology available to meet them so limited, that users will be required to use "exotic" or difficult technology, and/or will have to apply technology that is not demonstrated to work for a particular application, simply because it is the only legal solution. As the original SEA acknowledged, compliant coatings are not available for all applications. SCAQMD's own consultant, EMU, stated that it was "imperative" that compliant coatings be "economical, user-friendly, architecturally and aesthetically sound, and provide functional and environmental durability." This standard is not met by the final limits. The EMU study stated "Interviews with industrial paint chemists revealed that most of these commercial low VOC paints do not perform as well as the conventional high VOC paints." The potential impacts of these performance shortcomings in the final limits are not even acknowledged. At best, the Draft SEA glosses over these issues, and the substantial potential impacts that they present.

4-42 We find particularly troubling the information contained in Table 3-1 of the Draft SEA, setting forth the information on the number of compliant products from the CARB survey. The percentage of coatings currently available that meet the final limits range from 0% to 81%. In the critical nonflat and IM categories, only 3% and 11%, respectively, comply with the proposed final limits. Given the scope of the coatings categories in the proposed rule, even a "high" percentage of compliant products could mean that large numbers of actual coatings applications would not have compliant products available once the rule came into effect. In the absence of compliant coatings, the Draft SEA does not even attempt to identify what users will use, much less the potential impacts of using those compliant coatings. It simply assumes that compliant coatings will be available -- a conclusion that is contrary to all of the information identified in the document.

4-43 The comparison of product data information sheets for low- and high-VOC products does not establish technological feasibility or the lack of any impacts. The data sheets do not address the varying conditions that can affect a coating's application and durability, and were not a substitute for analytical chemistry and real world testing, which still has not been undertaken. We are planning to have more detailed comments on the data sheets to SCAQMD shortly, and have requested (unsuccessfully to date) that SCAQMD produce copies of any data sheets it has reviewed since the 1999 amendments were adopted so that industry can review the information upon which staff is relying. We believe that reliance upon these data sheets may also be erroneous, because of staff's improper determination of the categories in which the coatings belong.[1]

[1] As an example, Benjamin Moore has provided the following information relating to the staff's review of PDS sheets (with regard to the interim limits) as delineated in Appendix D to the Draft SEA: M58 is not a "floor coating" but an "Industrial Maintenance Traffic Marking Paint"; M40 and M41 are not "floor coatings" but are an "Industrial Maintenance two component floor sealing and coating system "not

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b. The FHA Study

4-44 SCAQMD asserted that the Federal Highway Administration (FHA) study supports the claim of compliant products for the final limits. The FHA study demonstrates that SCAQMD ignored information contained in the study, such as the conclusion that "long-term natural exposure data should be used in the selection of waterborne coatings for bridge corrosion control application." SCAQMD relied on the finding that low-VOC coatings performed as well or better than high-VOC coatings, but failed to recognize that none of the "low-VOC" coatings in the FHA study had VOC content below 120 g/l, and the "direct to metal" acrylics were at 250 g/l (compared to the final limit for IM coatings of 100 g/l).

4-45 The only liquid zero-VOC coating in the FHA study with good corrosion resistance was liquid inorganic zinc, and this coating has significant application and cost issues, including (1) requiring that the substrate be abrasively blasted clean to at least near-white metal, (2) being washed away in humid conditions, and (3) being usually followed by an organic coating, so in practice the system is not zero VOC. The other zero VOC metallized coatings are hot metal spray coatings (not paint in a can), with alarming application and potential health issues created by applying such coatings with flame. Also, the high-VOC control system performed well (and better than non-zinc epoxy systems), while the low-VOC organic zinc system experienced significant cutback from the intentional scribe, compared to the high-VOC system. The FHA study, in short, supports industry's claims that, while low- and zero-VOC coatings exist, they are not suitable or practicable for all application environments or requirements. The Draft SEA does not address these issues, nor the potential impacts identified in the FHA study.

b. Nonflats

4-46 While there are a very few exterior latex nonflat coatings at 0-50 g/l, these are the exception rather than common. To require this level will result in multitudes of product problems and limitations, including lack of color durability and restricted color availability. In addition, the products will tend to last for shorter periods of time and require more frequent repainting. It is important to remember that in latex coatings the VOCs are introduced to achieve specific performance characteristics. Without these VOCs, those performance characteristics are missing. Since these VOCs add to raw material costs (in contrast to the water for which the solvent is substituted), they are added at the lowest level compatible with the performance requirements. Specifically, the VOC additives are coalescents and glycols. The coalescents are added to help coalesce the latex film Without it, a softer resin would need to be used. Softer resins have problems with dirt pickup and block resistance, as well as decreased durability. The glycols are used to provide both freeze/thaw stability and improved application properties (flow, leveling, open time). Decreasing or eliminating the glycols results in decreasing these performance parameters; eliminating the glycols result in significantly reduced performance, as well as opening the possibility to freeze thaw spoilage. The conclusion that there are compliant products available and that no significant impacts will occur as a result of the use of those products is contrary to fundamental paint chemistry, and not explained by the Draft SEA.

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for use by the home owner"; and M47/M48 is not a general I/M coating but a two component Coal Tar Epoxy Black for use in waste treatment facilities with a VOC at 318. We anticipate that further review will demonstrate additional errors and the lack of adequately performing products.

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Conclusion

4-47 We appreciate the opportunity to provide these comments on the Draft SEA, and look forward to SCAQMD's response. NPCA and its members remain available to discuss any questions or comments you may have about the foregoing.

Sincerely

Robert J. Nelson
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Jim Sell
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Appendix A Submitted 9-4-02 1of 3

NPCA Suggested Changes to PAR 1113 – Architectural Coatings

TABLE OF STANDARDS

VOC Limits

Grams of VOC Per Liter of Coating, Less Water And Less Exempt Compounds

COATING	Current Limit*	Effective 1/1/1998	Effective 1/1/1999	Effective 7/1/2001	**Effective** ~~7/1/2002~~ **1/1/03**	**Effective 1/1/04**	Effective 1/1/2005	~~Effective 7/1/2006~~	Effective 7/1/2008
Bond Breakers	350								
Chemical Storage Tank Coatings – REVISED DEFINITION	420					**340**		~~100~~	
Clear Wood Finishes									
Varnish	350								
Sanding Sealers	350								
Lacquer		550					275		
Clear Brushing Lacquer	680						275		
Concrete-Curing Compounds	350								
Dry-Fog Coatings	400								
Essential Public Service Coating	420				340	**250*** **		~~100~~	
Fire-proofing Exterior Coatings			350						
Fire-Retardant Coatings									
Clear	650								
Pigmented	350								
Flats				100					~~50~~ **See foot note ******
Floor Coatings	420				**250** ~~100~~			~~50~~	
Graphic Arts (Sign) Coatings	500								
High Temperature Industrial Maintenance Coatings	420				550			~~420~~	
Industrial Maintenance Coatings	420				~~250~~	**250*** **		~~100~~	
Industrial Maintenance Zinc-rich Primer NEW CATEGORY	**420**					**340**			

4-48
cont.

Japans/Faux Finishing Coatings			350						
Magnesite Cement Coatings			450						
Mastic Coatings	300								
Metallic Pigmented Coatings	500								
Multi-Color Coatings		250							
Non-Flat Coatings	250				150			~~50~~	

4-48 cont.

2 of 3

TABLE OF STANDARD (Continued)

<u>Non-Flat - High Solids</u> NEW CATEGORY						<u>200</u>				
<u>Non-Flat –High Gloss</u>						<u>250</u>				
Pigmented Lacquer		550						275		
Pre-Treatment Wash Primers	780									
Primers, Sealers, and Undercoaters	350					200			~~100~~	
Quick-Dry Enamels	400					250			~~50~~	
Quick-Dry Primers, Sealers, and Undercoaters	350**					200			~~100~~	
Recycled Coatings						250			~~100~~	
Roof Coatings	300					<u>250</u>				
Bituminous Roof Coatings	300					250				
Rust Preventative Coatings	420					<u>400</u>			~~100~~	
Shellac										
Clear	730									
Pigmented	550									
<u>Specialty Primers</u> - REVISED DEFINITION	350								~~100~~	
Stains	350					250				
Swimming Pool Coatings										
Repair	650									
Other	340									
Traffic Coatings		150								
Waterproofing Sealers Wood Concrete/Masonry	 400 400					~~250~~				
<u>Waterproofing Sealers – Other</u> NEW CATEGORY						<u>250</u>				
Wood Preservatives										
Below-Ground	350									
Other	350									

4-48 cont.

* The specified limits remain in effect unless revised limits are listed in subsequent columns in the Table of Standards

** The specified limit applies unless the manufacturer submits a report pursuant to Rule 1113(g)(2).

*** Limit for both PES and IM will be depend on the successfully completion of technology assessment.

**** NPCA recommendation the 50g/l limit should only be implemented when a test method with suitable accuracy and reproducibility is adopted-- the two must go together.

3 of 3

VOC LIMITS

Gram of VOC Per Liter of Material

Coating	**Limit**
Low Solids	**120**

Prepared 9-04-02

1

NPCA Suggested Changes to the Definitions Used in Rule 1113

Prepared 9-3-02

(b) Definitions

For the purpose of this rule, the following definitions shall apply:

(1) AEROSOL COATING PRODUCT means a pressurized coating product containing pigments or resins that dispenses product ingredients by means of a propellant, and is packaged in a disposable can for hand-held application, or for use in specialized equipment for ground marking and traffic marking applications.

(2) APPURTENANCES are accessories to a stationary structure, including, but not limited to: hand railings, cabinets, bathroom and kitchen fixtures, fences, rain-gutters and down-spouts, window screens, lamp-posts, heating and air conditioning equipment, other mechanical equipment, large fixed stationary tools, signs, motion picture and television production sets, and concrete forms.

4-49

(3) **ARCHITECTURAL COATINGS are coatings applied to stationary structures or to their appurtenances at the site of installation, to portable building at the site of installation, to pavements, or curbs. Coatings applied in shop applications or to non-stationary structures such as airplanes, ships, boats, railcars, and automobiles, and adhesives are not considered architectural coatings for the purposes of this rule.**

Rational: *The definition should contain reference to "field application to make it clear that the regulation applies only to "field applied coatings and not to residential fixtures , wood paneling etc. that are coated in a factory. The above definition was adopted by CARB and has been accepted across the state and should be used in the SCAQMD.*

(4) BELOW-GROUND WOOD PRESERVATIVES are wood preservatives formulated to protect below-ground wood.

(5) BITUMINOUS COATINGS MATERIALS are black or brownish coating materials, soluble in carbon disulfide, consisting mainly of hydrocarbons and which are obtained from natural deposits, or as residues from the distillation of crude petroleum oils, or of low grades of coal

(6) BITUMINOUS ROOF COATINGS are coatings formulated and recommended for roofing that incorporate bituminous coatings materials.

(7) BOND BREAKERS are coatings applied between layers of concrete to prevent the freshly poured top layer of concrete from bonding to the substrate over which it is poured.

4-50

(8) **CHEMICAL STORAGE TANK COATINGS are coatings used as interior tank linings for the storage of oxygenated solvents, oxygenated solvent mixtures or acid based products.**

Rational: *The definition should remain the same as originally written in the originally adopted May 1999 version of Rule 1113. The addition of a maximum of 10% oxygenated solvents in a mixture would preclude using this category of coatings for gasoline containing methanol or ethanol as an additive. Due to the ban on using MTBE as an additive these are the most commonly used additives now and are much more aggressive than MTBE. Also the addition of a PH requirement for acids would preclude the use of this category of coatings for organic fatty acids which can be as aggressive as mineral acids and so also need to be included in this category of coatings*

(9) CLEAR BRUSHING LACQUERS are clear wood finishes, excluding clear lacquer sanding sealers, formulated with nitrocellulose or synthetic resins to dry by solvent evaporation without chemical reaction and to provide a solid, protective film, which are intended exclusively for application by brush, and which are labeled as specified in paragraph (d)(7).

(10) CLEAR WOOD FINISHES are clear and semi-transparent coatings, including lacquers and varnishes, applied to wood substrates to provide a transparent or translucent solid film.

(11) COATING is a material which is applied to a surface in order to beautify, protect, or provide a barrier to such surface.

(12) COLORANTS are solutions of dyes or suspensions of pigments.

(13) CONCRETE-CURING COMPOUNDS are coatings applied to freshly poured concrete to retard the evaporation of water.

(14) DRY-FOG COATINGS are coatings which are formulated only for spray application so that when sprayed, overspray droplets dry before falling on floors and other surfaces.

(15) ESSENTIAL PUBLIC SERVICE COATING is a protective (functional) coating applied to components of power, municipal wastewater, water, bridges and other roadways, including transmission or distribution systems during repair and maintenance procedures.

(16) EXEMPT COMPOUNDS (See Rule 102-Definition of Terms.)

(17) FIRE-PROOFING EXTERIOR COATINGS are opaque coatings formulated to protect the structural integrity of outdoor steel and other outdoor construction materials and listed by Underwriter's Laboratories, Inc. for the fire protection of steel.

(18) FIRE-RETARDANT COATINGS are coatings listed by Underwriter's Laboratories, Inc. as fire-retardant coatings with a flame spread index of less than 25.

(19) FLAT COATINGS are coatings that register a gloss of less than 15 on an 85-degree meter or less than 5 on a 60-degree meter.

(20) FLOOR COATINGS are opaque coatings that are formulated for application to flooring; including but not limited to decks, porches, gymnasiums, bowling alleys; for purposes of abrasion resistance.

(21) GRAMS OF VOC PER LITER OF COATING, LESS WATER AND LESS EXEMPT COMPOUNDS, is the weight of VOC per combined volume of VOC and coating solids and can be calculated by the following equation:

$$\text{Grams of VOC per Liter of Coating, Less Water and Less Exempt Compounds} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Where:

Where:	W_s	=	weight of volatile compounds in grams
	W_w	=	weight of water in grams
	W_{es}	=	weight of exempt compounds in grams
	V_m	=	volume of material in liters
	V_w	=	volume of water in liters
	V_{es}	=	volume of exempt compounds in liters

For coatings that contain reactive diluents, the Grams of VOC per Liter of Coating, Less Water and Less Exempt Compounds, shall be calculated by the following equation:

$$\text{Grams of VOC per Liter of Coating, Less Water and Less Exempt Compounds} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

4

Where: W_s = weight of volatile compounds emitted during curing, in grams

W_w = weight of water emitted during curing, in grams

W_{es} = weight of exempt compounds emitted during curing, in grams

V_m = volume of the material prior to reaction, in liters

V_w = volume of water emitted during curing, in liters

V_{es} = volume of exempt compounds emitted during curing, in liters

(22) GRAMS OF VOC PER LITER OF MATERIAL is the weight of VOC per volume of material and can be calculated by the following equation:

$$\text{Grams of VOC per Liter of Material} = \frac{W_s - W_w - W_{es}}{V_m}$$

Where: W_s = weight of volatile compounds in grams

W_w = weight of water in grams

W_{es} = weight of exempt compounds in grams

V_m = volume of the material in liters

(23) GRAPHIC ARTS COATINGS (Sign Paints) are coatings formulated for and hand-applied by artists using brush or roller techniques to indoor and outdoor signs (excluding structural components) and murals, including lettering enamels, poster colors, copy blockers, and bulletin enamels.

(24) HIGH-TEMPERATURE INDUSTRIAL MAINTENANCE COATINGS are industrial maintenance coatings formulated for **application to** substrates that are exposed continuously or intermittently to temperatures above 400 degrees Fahrenheit.

4-51

(25) **INDUSTRIAL MAINTENANCE COATINGS are coatings, including primers, sealers, undercoaters, intermediate coatings and topcoats formulated for application to substrates that are exposed to one or more of the following extreme environmental conditions:**

(A) immersion in water, wastewater, or chemical solutions (aqueous and non-aqueous solutions), or chronic exposure of interior surfaces to moisture condensation;

4-51 cont.

(B) acute or chronic exposure to corrosive, caustic or acidic agents, or to chemicals, chemical fumes, chemical mixtures, or solutions;

(C) repeated exposure to temperatures in excess of 250 degrees Fahrenheit;

(D) repeated heavy abrasion, including mechanical wear and repeated scrubbing with industrial solvents, cleaners, or scouring agents; or

(E) exterior exposure of metal structures.

Effective January 1 2004, Industrial Maintenance Coatings are not for residential use or for use in areas of industrial, commercial, or institutional facilities not exposed to such extreme environmental conditions, such as office space and meeting rooms.

Rational: *This modification of the definition will make it more compatible with the ARB definition.*

(26) JAPANS/FAUX FINISHING COATINGS are glazes designed for wet-in-wet techniques used as a stain or glaze to create artistic effects, including but not limited to, dirt, old age, smoke damage, and simulated marble and wood grain.

(27) LACQUERS are clear or pigmented wood finishes, including clear lacquer sanding sealers, formulated with nitrocellulose or synthetic resins to dry by evaporation without chemical reaction.

(28) LOW-SOLIDS COATINGS are coatings containing one pound or less of solids per gallon of material.

4-52

(29) MAGNESITE CEMENT COATINGS are coatings formulated for **application to** magnesite cement decking to protect the magnesite cement substrate from erosion by water.

(30) MASTIC COATINGS are coatings formulated to cover holes and minor cracks and to conceal surface irregularities, and applied in a thickness of at least 10 mils (dry, single coat).

4-53

(31) METALLIC PIGMENTED COATINGS are coatings containing at least 0.4 pound of elemental metallic pigment per gallon (50 grams/liter) of coating as applied.

Eliminate last sentence in definition: "Zinc-Rich Industrial Maintenance Coatings are not considered metallic pigmented coatings."

4-53 cont.

Rational: *This will keep definition consistent with the ARB and EPA definitions for this category.*

(32) MULTI-COLOR COATINGS are coatings which exhibit more than one color when applied and which are packaged in a single container and applied in a single coat.

(33) NONFLAT COATINGS are coatings that register a gloss of 15 or greater on an 85-degree meter and a gloss of 5 or greater on a 60-degree meter.

4-54

(34) NON-FLAT - HIGH SOLIDS COATING is a non-flat coating that has volume solids in excess of 33%.

Rational: *Refer to September 3, 2002 letter from Valspar Corportation.*

4-55

(35) NON-FLAT- HIGH GLOSS COATING is a non-flat coating that registers a gloss of 70 or above on a 60 degree meter.

Rational: *The ARB 2000 Architectural Coatings survey showed that High Gloss Non-flats have a higher average VOC content than either Medium or Low Gloss Non-flats, and substantially less sales volume. Concsequently, the SCM included a separate category for High Gloss-Non-flats with a VOC content limit of 250 g/l. Industry testshow that lower VOC High Gloss Non-flats both interior and exterior are generally worse for freeze/thawresistance; open time scrub resistance; and block resistance. Therefore, the amended Rule 1113 should include a separate category for High Gloss Non-flat coatings with a VOC content limit of 250 g/l consistent with the SCM*

(36) PRE-TREATMENT WASH PRIMERS are coatings which contain a minimum of 1/2 percent acid, by weight, applied directly to bare metal surfaces to provide necessary surface etching.

(37) PRIMERS are coatings applied to a surface to provide a firm bond between the substrate and subsequent coats.

(38) QUICK-DRY Enamels are non-flat coatings which comply with the following:

(A) Shall be capable of being applied directly from the container by brush or roller under normal conditions, normal conditions being ambient temperatures between 60°F and 80°F;

(B) When tested in accordance with ASTM D 1640 they shall: set-to-touch in two hours or less, dry-hard in eight hours or less, and be tack-free in four hours or less by the mechanical test method; and

(C) Shall have a 60° dried film gloss of no less than 70.

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4-56 (39) QUICK-DRY PRIMERS, SEALERS, AND UNDERCOATERS are primers, sealers, and undercoaters which are intended to be applied to a surface to provide a firm bond between the substrate and subsequent coats and which are dry-to-touch in one-half hour and can be recoated in two hours (ASTM D 1640). **Eliminate reference to "subsumed to"**

(40) REACTIVE DILUENT is a liquid which is a VOC during application and one in which, through chemical and/or physical reaction, such as polymerization, becomes an integral part of the coating.

(41) RECYCLED COATINGS are coatings collected through Household Hazardous Waste Collection Programs or other waste minimization and resource recovery programs. Recycled coatings shall be formulated such that not less than 50 percent of the total weight consists of secondary post-consumer waste paint, with not less than 10 percent of the total weight consisting of post-consumer waste paint.

(42) ROOF COATINGS are non-bituminous coatings formulated for application to exterior roofs and for the primary purpose of preventing penetration of the substrate by water, or reflecting heat and ultraviolet radiation. Metallic pigmented roof coatings, which qualify as metallic pigmented coatings, shall not be considered to be in this category, but shall be considered to be in the metallic pigmented coatings category.

(43) RUST PREVENTATIVE COATINGS are coatings formulated for use in preventing the corrosion of metal surfaces in residential and commercial situations.

4-57 (44) SANDING SEALERS are clear wood coatings formulated for **application to** bare wood for sanding and to seal the wood for subsequent application of coatings. To be considered a sanding sealer a coating must be clearly labeled as such.

(45) SEALERS are coatings applied to substrates to prevent subsequent coatings from being absorbed by the substrate, or to prevent harm to subsequent coatings by materials in the substrate.

(46) SHELLACS are clear or pigmented coatings formulated solely with the resinous secretions of the lac beetle (laccifer lacca), thinned with alcohol, and formulated to dry by evaporation without a chemical reaction.

(47) SOLICIT is to require for use or to specify, by written or oral contract.

4-58 (48) SPECIALTY PRIMER is a coating formulated and recommended for application to a substrate **to block stains, odors or efflorescence;** to seal fire, smoke or water damage; or to condition excessively chalky surfaces; **or recommended for application to exterior wood or wood-based surfaces, or for highly alkaline cement, plaster, and other cementitious surfaces**. An excessively chalky surface is one that is defined as having chalk rating of four or less as determined by ASTM D-4214 – Photographic Reference Standard No. 1 or the Federation of Societies for Coatings Technology "Pictorial Standards for Coatings Defects".

4-58 cont.

***Rational**: The SCAQMD definition does not take into account the data from the NTS study. This data showed that stain blocking properties were absent from **all** of the waterborne primers tested no matter the VOC content; and that stain blocking properties were present in **all** of the solventborne primers tested. This data was one of the reasons CARB included stain blocking as a condtion qualifying a primer for the specialty primer definition and limit. In addition, the NPCA believes that the unique properties for blocking efflorescence and the priming of bare exterior wood surfaces or highly alkaline cement, plaster, and other cementitious surfaces should also qualify a primer to be specialty primer. Refer to attached document on Specialty Primers for additional explanation of rational for change in definition.*

(49) STAINS are opaque or semi-transparent coatings which are formulated to change the color but not conceal the grain pattern or texture.

(50) SWIMMING POOL COATINGS are coatings specifically formulated to coat the interior of swimming pools and to resist swimming pool chemicals.

(51) SWIMMING POOL REPAIR COATINGS are chlorinated, rubber-based coatings used for the repair and maintenance of swimming pools over existing chlorinated, rubber-based coatings.

(52) TINT BASE is an architectural coating to which colorants are added.

4-59

(53) TRAFFIC COATINGS are coatings formulated for **application** to public streets, highways, and other surfaces including, but not limited to, curbs, berms, driveways, and parking lots.

4-60

(54) UNDERCOATERS are coatings formulated **for application** to substrates to provide a smooth surface for subsequent coats.

(55) VARNISHES are clear wood finishes formulated with various resins to dry by chemical reaction on exposure to air.

(56) VOLATILE Organic COMPOUND (VOC) See Rule 102.

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(57) **WATERPROOFING WOOD SEALERS are colorless coatings which are formulated for the sole purpose of preventing penetration of porous substrates by water on wood substrates.**

4-61 ***Rational:*** *Eliminate this category and replace by Waterproofing Sealers Other [see definition below]. Some waterproofing sealers are for multiple substrates or for concrete but do not meet all of the criteria built into the definition of waterproofing concrete/masonry sealer. These coatings are still waterproofing sealers. This was discussed at the February 28, 2002 Rule 1113 Work Group meeting and at the August 21,2002 Public Work Shop. Thus there is a need for a generic waterproofing category instead of waterproofing wood sealer; recommended limit of 250 g/l.*

(58) WATERPROOFING CONCRETE/MASONRY SEALERS are clear or pigmented film forming compounds that are formulated for sealing concrete and masonry to provide resistance against water, alkalis, acids, ultraviolet light, and staining.

4-62 (59) **WATERPROOFING SEALERS OTHER are coatings labeled and formulated for the application to a porous substrate for the primary purpose of preventing the penetration of water.**

Rational*: Refer to Waterproofing Wood Sealers*

(60) WOOD PRESERVATIVES are coatings formulated to protect wood from decay or insect attack by the addition of a wood preservative chemical registered by the California Environmental Protection Agency.

(61) **INDUSTRIAL MAINTENANCE – ZINC-RICH PRIMERS are coatings applied direct to metal substrates and formulated to contain a minimum of**

4-63 **seventy four percent metallic zinc powder (zinc dust) by weight of total solids. The resin binder may be inorganic or organic**

Rational*: Refer to detailed comments on Zinc-Rich Coatings that have been submitted by the TNEMEC Company, August 30,2002.*

1

SPECIALTY PRIMERS

Priming of Highly Alkaline Cement, Plaster and Other Cementitious Surfaces

4-64 The main function of a primer is to be compatible with the substrate. Maximum penetration of the vehicle is vital in order to anchor the primer successfully as well as to allow it to thoroughly stabilize the surface for the topcoat. Emulsion or latex systems are limited in the amount of substrate penetration due to the size of the polymeric material. With the lowering the VOC's to primers to 200-grams/liter, the ability to flow, level, penetrate and maintain a wet edge is questionable. The results are holidays, dry spray particles and heavy overlapped films. The use of acetone to achieve a VOC of 200-grams per liter would further contribute to the problems of film formation and application problems, especially cobwebbing. Many materials are simply not soluble with the percentage of acetone needed to bring the VOC's down to 200-grams/liter.

4-65 There has been discussion of the use of new curing compounds and bond breakers that break down with ultraviolet or that are compatible with coatings. Upon contacting the manufacturers of these materials, they all say if the coating literature says it must be free of contaminants, the walls must be thoroughly cleaned. One of the manufacturers continued with the comment that if the bond breaker was applied in a heavy coat, sand blasting might be necessary to remove the residue. Even with power washing the walls, there is often residue remaining on the wall. If there is failure due to the loss of adhesion of a primer, the building will need to be recoated. This creates added VOC's to the environment, from recoating of both the primer and the topcoat.

4-66 There have been many failures of waterborne coatings, both one and two-part systems being applied to either highly alkaline cementitious surfaces, or as a result of going over a previously power washed surface that contains residue of the form oils used in manufacturing the cementitious panels. The primer, and often the topcoat applied to it, peels off in large sheets, resulting in the entire building being recoated. This is not a rare occasion, but is often seen in the field. Specialty primers, manufactured for application over green, highly alkaline concrete surfaces, where there are often residual form oils, are often used after these failures occur. Without this addition to specialty primer definition, the result may be more VOC's are emitted as the building needs to be repainted. The technology for a low VOC waterborne primer that works under all these conditions has not been developed, although many companies have spent much time to develop such a product.

4-67 One of our members recently tested waterborne coatings, with many different additives over residual form oils. Five top selling waterbased commercial primers were tested, as well as the addition of various adhesion additives claiming to improve the adhesion over oily surfaces. In addition, enough solvent was added to a waterbased primer to take it to 200-grams per liter, as well as 350-grams per liter. A 350- gram per liter solvent borne coating was used as a control. The 350-gram per liter solvent borne coating exhibited very good adhesion, with one of the commercial waterbased primers performing as an equal. This primer was labeled at 350-grams per liter. The other commercial primer (also at 350-grams per liter) had adequate adhesion, as well as the waterbased primer that had

4-67 cont. 350-grams per liter total solvent. The other commercial waterbased primers, all formulated at 200-grams per liter failed the adhesion test. None of the additives were able to cut through the form oils, even with a 200-gram per liter waterbased product.

4-68 Another problem often seen in the field is with surfaces previously coated with silanes and siloxanes. The silanes and siloxanes work very well, but often, after three, five or more years, there is a desire to change the appearance of the building. Latex primers or coatings will not adhere to a surface previously coated with silanes or siloxanes. Solvent-borne primers will penetrate these hard to resurface substrates, forming a strong bond with the surface.

4-69 There are other problems often associated with tilt-up walls, as well as cured or fresh concrete or masonry. One is the high alkalinity of the substrate. Exposure of latex primers to high alkalinity conditions will result in the breakdown of the latex, causing delamination of the cured primer. This will cause the material to come off the walls. The other problem, which is part of the current definition, is the chalky surfaces. Even after power washing, many of these substrates still have excessive chalk. Water-based systems cannot penetrate these chalky surfaces, which will again result in a failure to bond the primer to the substrate. The coating system will fail, the walls will have to be reprimed and repainted. Specialty primers should also include the highly alkaline surfaces, because these are also the surfaces that will have excessive chalk.

4-70 The use of a solvent-borne primer is to provide a sound surface for many types of topcoats, including water-borne or latex system. The coverage rate for a solvent primer is high, typically 200 to 300 square feet per gallon. In addition, by tying up chalky residue, and by penetrating form oil residue, or previously coated silane/siloxane substrates, the solvent primers actually reduce the need for recoating due to premature coating failure by adhesive failure.

4-71 **Economic Impact**

The modification of this definition to the Specialty Primer Category would be to include products for highly alkaline surfaces and for penetrating form oils, bond breakers or silane/siloxane coated substrates would not add a significant amount of VOC's, but would reduce the economic hardship to building contractors, occupants and owners. Many cases have been reported where latex primers peel off the wall, even after the contractor has done an exceptional job of pressure washing the walls. Once the latex primer disbonds, the wall must be cleaned again, and recoated. Often, the topcoat has already been applied as well. This results in an economic hardship for the contractor, the coating manufacturer, as well as the building owner.

4-72 The use of a solvent-borne primer to provides a sound surface for many types of topcoats, including water-borne or latex systems. The coverage rate for a solvent primer is high, typically 200 to 300 square feet per gallon. In addition, by tying up chalky residue, and by penetrating form oil residue, the solvent primers actually reduce the need for recoating due to premature coating failure by loss of adhesive. There is also the problem of additional VOC being released in the atmosphere. If a water-based primer is used, at 200

3

4-72 cont. grams per liter, and applied twice, the result is more VOC's released than if a specialty primer was used.

Recommendation

We recommend the addition to the definition of the "Specialty Primer" category:

4-73 'A Specialty Primer is coating formulated and recommended for application to a substrate to block stains, odors, efflorescence; to seal fire, smoke or water damage; or to condition excessively chalky surfaces; or recommended for application to exterior wood or wood-based surfaces, or for highly alkaline cement, plaster, and other cementitious surfaces. An excessively chalky surface is one that is defined as having a chalk rating of four or less as determined by ASTM D-4214 – Photographic Reference Standard No. 1 or the Federation of Societies for Coatings Technology "Pictorial Standards for Coatings Defects".

This Specialty Primer category would retain the VOC level of 350-grams/liter.

Prepared 9/4/02

COMMENT LETTER #4 FROM NATIONAL PAINT AND COATING ASSOCIATION (NPCA)

(September 4, 2002)

Response to Comment #4-1

The August 2002 Draft SEA for the currently proposed amendments to Rule 1113 does rely substantially on the 1999 Final SEA for the 1999 amendments to Rule 1113 because the currently proposed project would essentially readopt the 1999 amendments, with some modifications, that was voided by the court in June 2002. Comprehensive responses to all comments submitted by this commentator on the Draft SEA for the 1999 amendments were prepared and are included in Appendix F of the August 2002 Draft SEA.

Response to Comment #4-2

Since the Draft SEA for PAR 1113 identified no significant adverse environmental impacts a 30-day public comment period is deemed appropriate. Public Resources Code §21091 allows a CEQA document with significant adverse environmental impacts (EIR) a public review and comment period no less than 30 days. For a document with no significant adverse environmental impacts (negative declaration) the comment period can be as short as 20 days. Further, no one contacted the SCAQMD requesting an extension of the comment period. The commentator appears to have had sufficient time to review the Draft SEA since he has provided a comprehensive comment letter comprised of over 70 individual comments. Further, as indicated by the commentator, the August 2002 Draft SEA relies substantially on the EA for the amendments to Rule 1113 that were originally adopted in 1999. The commentator also provided a comment on that CEQA document (see comment letter #5 in Appendix F) of the August 2002 Draft SEA).

Staff is has reviewed the concerns raised with the coatings data and updated in Appendix D, which were retrieved from various coating manufacturer's Technical Data Sheets. One coating company has contacted and advised the SCAQMD that the data on its TDS was incorrect. This information, however, does not change the overall conclusions in the Draft SEA.

Response to Comment #4-3

Because of the large number of currently available compliant coatings for both the 2003 and 2006 VOC content limit requirements and the long lead time for research and development of future compliant VOC coatings, the SCAQMD believes there is a firm basis supporting the proposed amendments to Rule 1113. The SCAQMD's survey of manufacturers' product information sheets for AIM coatings revealed that there are over 100 low-VOC IM coatings that comply with the 2003 interim compliance date and over 140 that comply with the 2006 final compliance date (Table F-1). The survey demonstrates that compliant coatings for both the 2003 and 2006 VOC content limits are available for a number of coating applications. In addition to demonstrating that future compliant coatings are currently available for many applications, one of the most important points demonstrated by the survey is that there are resin technologies currently available that may be transferred to other coating categories and coating applications. Further, according to the SCAQMD's survey, many of these currently available coatings that comply with the future VOC content limits can meet desired performance characteristics as compared to conventional high-VOC coatings. Further, the Draft SEA has comprehensively evaluated the potential adverse environmental impacts associated with the implementation of PAR 1113 and has concluded that no significant adverse significant impacts are anticipated.

Staff reviewed coating product data sheets (see the tables in Appendix D) to obtain performance, in particular durability, information for low-VOC coatings and conventional coatings. Based upon a comparison of the coating product information sheets, staff concluded that low VOC coatings have durability characteristics comparable to conventional coatings. Further, based on current availability of low and zero-VOC AIM coatings for a wide range of applications, it is anticipated that even more compliant coatings will be available by the 2003 and 2006 compliance dates. Finally, contrary to the commentator's opinion, there is no evidence to suggest that reformulated coatings at lower VOC content limits will not exhibit desired performance characteristics. In fact, based on the comparable durability of low VOC coatings compared to traditional high VOC coatings, performance characteristics are expected to be similar.

Response to Comment #4-4

The SCAQMD disagrees with the commentator's opinion that the only commercially available and technologically feasible coatings that meet the 2006 limits are exotic ones completely ill-suited for many applications. Please refer to response to comment #4-3 and the following responses to the commentator's specific comments.

Response to Comment #4-5

The SCAQMD is aware of the CEQA requirements regarding providing an accurate project description. The project description in the CEQA document clearly lists the changes to the rule and provides a table outlining the coating category, current limits, future limits and estimated emission reductions. This is in compliance with the CEQA Guidelines §15124 which states the project description "should not supply extensive detail beyond that needed for evaluation and review of the environmental impact."

This comment also implies that once the interim and final VOC content limits become effective, not only will currently available coatings no longer be used, but no replacement compliant coatings will be available. Thus, the analysis of potential adverse environmental impacts from implementing PAR1113 has been minimized. First, the implication that compliant coatings will not be available is not consistent with current information regarding AIM coatings (refer to response to comment #4-3). Second, the Draft SEA contains a comprehensive analysis of potential adverse environmental impacts as a result of implementing PAR 1113. Finally, although not required because no significant adverse environmental impacts were identified, the Draft SEA includes an analysis of the relative merits of a range of reasonable project alternatives. Consequently, the Draft SEA for PAR 1113 complies with all relevant CEQA requirements, including those related to providing an accurate project description.

Response to Comment #4-6

The SCAQMD disagrees with commentator's opinion that two different compliance limits constitute two separate rulemakings. The CEQA Guidelines §15378 defines "project" as the "whole of an action" and both the interim and final limits are required from the same rule subject to the same coating users. In addition, if divided, the SCAQMD staff believes this would be viewed as piecemealing the project to lessen the impacts from overall proposed project. Further, the analysis of both compliance phases of PAR 1113 is consistent with CEQA Guidelines §15165, which states in part, "Where individual projects are, or a phased project is, to be undertaken and where the total undertaking comprises a project with significant environmental effect, the lead agency shall prepare a single program [CEQA document] for the ultimate project as described in Section 15168." Because the Subsequent EA for PAR 1113 addresses impacts from an ongoing regulatory program, it is consistent with the requirements for a program CEQA document, as identified in CEQA Guidelines §15168.

Response to Comment #4-7

The Draft SEA fulfills the requirements of CEQA by analyzing the impacts from the "whole of an action." The action is the lowering of the VOC content limit for certain coating categories in Rule 1113. Users of the coatings are required to satisfy the limits by the compliance date but are not required to satisfy the interim limit if the final limit is achieved first. Regardless of the date when the lower VOC content limits are reached, either limit will contribute a VOC emission reduction and, therefore, a "net benefit" would still be obtained by the rule. Finally, by evaluating all affected coating categories together, rather than discreetly, the environmental analysis maximizes potential adverse environmental impacts, thus, providing full disclosure of impacts and providing the public with an opportunity comment on the full extent of the impacts that may be generated by implementing the proposed project. SCAQMD is not required to individually analyze each portion of a project. If the project were divided into each individual category, SCAQMD could be accused of "piecemealing" the project to minimize impacts.

Response to Comment #4-8

The SCAQMD is unaware of any CEQA requirement or case law requiring a lead agency to subdivide a project for the CEQA analysis. Apparently, the commentator is also unaware of any such legal requirement, since none is cited. The standard practice that the SCAQMD has always followed when analyzing the environmental effects of new or amended SCAQMD rules, is to evaluate all components of the new or amended rule to determine the total environmental effects of the project. This approach is consistent with CEQA as explained in Response 4-7. To analyze component parts of PAR separately is inconsistent with current and past SCAQMD CEQA policy and procedures and would be a violation of CEQA itself (see for example CEQA Guidelines §15165). Further, this identical argument for subdividing various limits for Rule 1113 in the CEQA analysis was previously rejected by a trial court.

The example of the rail line and the lawnmowers is irrelevant because these are clearly unrelated projects and there is not requirement in CEQA to analyze unrelated projects that have no bearing on one-another. Clearly, changes in VOC content limits over time for coatings used on the same substrates are related. For example, the users of a particular coating may be the same for another architectural coating, and the users of one coating affected by both interim and final limits will most likely be the same. The user of quick dry enamel, for instance, will not change as a result of the lowering of the VOC content, and someone not using quick dry enamel will not suddenly begin to use the product because the VOC content limit has been lowered.

Further, potential impacts from reformulating coating products are related if they have similar adverse effects to the same environmental categories. The relationship between the coating categories exists because the rule regulates architectural coatings, which is different from coatings that are applied to wood furniture, metal product, plastic, rubber, glass, etc. The change in VOC content limits of the affected architectural coatings is the action taking place all at once and will affect users of architectural coatings. The argument that some users may not use all the coatings subjected by the rule is not valid because some users may in fact use a number of coatings affected by the proposed amendments. To dismiss the "worst-case" scenario would be an underestimation of potential adverse impacts from the proposed project. The fact that an overall "net benefit" results from the reduction in VOC emissions from the various related coating categories will not change if the project is split into different projects. As each affected coating category lowers the VOC content limit, the air quality will benefit.

Response to Comment #4-9

The SCAQMD disagrees with the commentator's opinion that the regulated industry's input is ignored. The SCAQMD has incorporated changes to PAR 1113 recommended by the regulated industry and has not incorporated other recommendations because the SCAQMD may not have agreed with the comments or recommendations at the August 21st workshop and on the yearly staff reports, but that does not mean the SCAQMD ignored them. Below, staff addresses the specific comments listed.

Response to Comment #4-10

The SCAQMD is not sure what the commentator is referring regarding an abandoned NTS Field Study, since no such NTS study was abandoned. Instead, the SCAQMD completed all three phases of the NTS study, which included laboratory testing, accelerated outdoor (field) exposure tests, and the real-time exterior (field) exposure tests. All three phases were conducted with oversight from the Technical Advisory Committee (TAC). The SCAQMD assumes that the commentator is referring to the application coating study discussed as a possible extra study, which industry requested to address its question about the application characteristics of low VOC coatings relative to high VOC coatings. As an active member of the Working Group, the commentator is fully aware that the protocol and check lists for the application study could not be completed because the industry and TAC member responsible for organizing a group of qualified painting contractors to conduct the application study was unable to do so. While the SCAQMD is still interested in participating in an application study, such a study would not likely add any important new information on the relative performance characteristics between low VOC and high VOC coatings. As the NTS study has already demonstrated, while low VOC coating may not apply as well as high VOC coatings. Low VOC coatings exhibit excellent durability characteristics which are more important considerations for the use of such coatings as industrial maintenance coatings. More recently, commercial use of low-VOC coatings have expanded even for businesses that are concerned about the aesthetics, an area which better applying coatings outperform in. Thus, large local companies, including studios and amusement parks are using coatings that currently comply with the proposed interim and final limits for most categories. Specifically, Universal Studios has been applying these coatings for studio work for over five years in a variety of ambient conditions. Clearly, aesthetics is extremely important in studio work and Universal would not use these low-VOC products if field application characteristics and subsequent film appearance was inferior to the higher VOC products they used in the past.

Additionally, a large amusement park was constructed using primarily low-VOC paints from a variety of categories. During construction the field application of these coatings resulted in excellent aesthetic properties. Additionally, these products, even after nearly two years of exposure, are exhibiting excellent durability characteristics.

Response to Comment #4-11

This issue was discussed in numerous Working Group Meetings, as well as addressed in the Annual Status Reports published by the SCAQMD over the past three years. NTS staff handled all zero-VOC, low-VOC, and high-VOC coated panels in the same manner. Since the NTS Study was designed for a comparative analysis, this handling method was deemed to have the same impact, if any, on all the coated panels since they were handled under identical conditions.

Response to Comment #4-12

This issue was discussed in numerous Working Group Meetings, as well as addressed in the Annual Status Reports published by the SCAQMD over the past three years. As reported earlier, in order to maintain a consistent film thickness, as recommended by the coating manufacturer, the NTS staff used a draw-down bar for coating the substrate instead of brushing, rolling or spraying the coating. This method of application is allowed under the established approved test methods (ASTMs).

Response to Comment #4-13

The SCAQMD assumes that the commentator is referring to reporting VOC information as tested versus as reported by the manufacturer. As the commentator is aware, the tested VOC information presented in the initial draft report was inconsistent and a decision was made to use reported VOC levels as a measure. Nonetheless, the SCAQMD's laboratory conducted its own VOC analysis on many of the coatings included in the assessment and found that the measured VOC data were consistently very close to the measured VOC values. As a result, the study findings would not be affected.

Response to Comment #4-14

In the KTA TATOR study, as well as the State Control Measure (SCM), high-gloss non-flats are defined as coatings with a gloss of no less than 70 on a 60 degree meter. This was the criterion used by the TAC, who had oversight over the coatings selected and used in the assessment. The TAC relied upon gloss values published in the manufacturer's data sheets. The actual measurement for gloss shows that none of the coatings included in the testing, which includes the products with a VOC content less than 150 g/l, as well as more than 150 g/l, met the gloss values. The actual gloss values of waterborne coatings have been an issue within the industry for several years, and prompted the Master Painter's Institute to conduct a special study entitled New MPI Gloss Levels Study 'Spotlights' Industry Problem. This study also concluded that the industry has caused a lot of confusion in its marketing literature by moving away from actually reporting gloss levels at both the 60 degree and 85 degree meter. MPI proposed to adopt standardized gloss reporting methods as a resolution to this on-going issue. The study still accurately reported the comparison between lower VOC and higher VOC coatings of comparable gloss. Therefore, the study supports the conclusion that lower VOC coatings do not have worse performance characteristics.

Additionally, the staff report includes lists of approved products by MPI, including nonflat coatings that meet the high gloss criteria of 70 or greater on a 60 degree meter. This clearly shows that compliant nonflat high gloss coatings are available and meet the MPI standards for performance, including gloss. The commentator is encouraged to review this information available through MPI's website (www.paintinfo.com).

Response to Comment #4-15

The commentator's organization, NPCA, has members represented in the TAC, which had oversight on the KTA TATOR Assessment. As indicated in Response to Comment #4-10, the SCAQMD, with help from the TAC, has designed a field application assessment, but has been unable to conduct such a study in the absence of qualified contractors who are interested in conducting the study. If the commentator has recommendations for a group that can conduct the field application assessment, as well as funding, the SCAQMD encourages the commentator to forward that information to staff. Moreover, studies that were performed documented performance characteristics such as durability that are relevant to "real world" application.

Response to Comment #4-16

The tests and evaluations do disclose the positive and negative results of a coating's performance, durability, etc. These results are presented in the annual report to the Governing Board. The purpose of the annual report is to present the results of the test studies, which was done. If industry representatives believe significant comments were omitted, they can comment directly to the Board on that agenda item. The staff report for each rule development process presents all the information gathered regarding the amendments and reasons considered when making decisions regarding the amendments, including the industry comments. The staff report also includes summaries of comments received on the rule and supporting documentation as well as SCAQMD responses to these comment summaries. Further, the public hearing process allowed affected parties to directly address the Governing Board members with their viewpoints and influence the decision making process.

Response to Comment #4-17

Please refer to responses to comments #4-10 and #4-15. Additional study results beyond those available in 1999 are now available which support the conclusions that no significant adverse impact will result from the rule amendments. The agencies that provide essential services to the public were provided with a slightly higher interim VOC limit to provide an adequate amount of time to complete their technical assessment, as required by the Public Resources Code on contracting and purchasing. This technical assessment, as required by the public contracting procedure, requires a phased approach over a five-year period before a product can be added to their specifications. Private companies that do not provide essential public services to the public did not offer such information or limitations in their contracting or purchasing requirements. Nonetheless, to ensure that all feasible measures are implemented and in response to comments received, the SCAQMD has revised its initial proposal and eliminated the separate Essential Public Service Coating Category, and extended the interim VOC limit implementation date for industrial maintenance coating category to January 1, 2004 to align the requirement with CARB's SCM. Staff believes that compliant coatings are adequately demonstrated and should be used by 2004. If public agencies or other wish to continue to use higher VOC coatings after the 2004 compliance date, it is likely that there will be such coatings available under averaging programs and the sell-through provision.

Response to Comment #4-18

The commentator is focusing on the one waterborne industrial maintenance coating system that failed, but fails to mention that the best performing industrial maintenance coating systems tested were comprised of coatings that met the final proposed limit of 100 g/l. If all the results are assessed and analyzed, instead of just one of 27 coating systems analyzed, it is clear that more frequent recoating, more quantity of coatings, and substitution would not occur. The SCAQMD welcomes the commentator to meet with staff to discuss the results of all the systems tested.

The commentator's opinion that the Draft SEA did not evaluate the effect of more frequent recoating is incorrect. In the "Air Quality" section of Chapter in the Draft SEA there is a specific discussion of the issues raised by the industry, including more frequent recoating. The assertion that low VOC coatings require more frequent application is based on the opinion that low VOC coatings are less durable than high VOC coatings. According to the discussion in the Draft SEA, information provided by Eastern Michigan University shows that low VOC coatings, acrylic coatings, have superior durability characteristics than high VOC coatings, alkyd coatings. Consequently, the opinion that low VOC coatings are less durable is inconsistent with the information provided by Eastern Michigan University, as discussed in the Draft SEA.

Response to Comment #4-19

Although the NTS Study showed inferior application characteristics, that is sagging, leveling, etc., for the zero-VOC and low-VOC coatings tested as compared to their higher-VOC counterparts, he fails to mention that the same products showed superior durability characteristics that are key to showing that less frequent recoating would be needed and that substitution would not occur, since these products last longer (see also response 4-18 regarding durability of low VOC coatings. In past comments, industry has focused concerns on durability of low-VOC coatings. However, industry members during the development of the NTS Study, as well as the subsequent KTA TATOR assessment, were unable to reach consensus on what characteristics are more important. Different manufacturers place different emphasis on what characteristic is most important. Establishing the same minimum standards/criteria of performance in conducting such evaluations and comparisons would have been highly desirable. Staff would welcome industry's input on minimum performance standards, which could be incorporated into designing technology assessments for the final VOC content limits

Response to Comment #4-20

Based on comments received from the industry, staff is proposing to delete the Essential Public Service Coating Category, and extend the implementation date for the Industrial Maintenance Coating Category from the originally proposed January 1, 2003 to January 1, 2004. This revised proposal includes a VOC limit of 250 g/l, and to respond to the court's concerns, as well as implement all feasible measures, effective January 1, 2004, which aligns the implementation date with the CARB's SCM. Staff believes that compliant coatings are adequately demonstrated and should be used by 2004. By delaying compliance for the remainder of IM users until 2004, the proposal provides further assurance that IM users wil be easily able to obtain compliant, well-performing products.

The Essential Public Service Coatings category was initially provided with a higher interim VOC limit of 340 g/l in order to provide sufficient time for the providers of essential services to test and update their specifications. Based on discussions at various working group meetings, the commentator is well aware of the stringent testing program of these service providers. The testing consists of a two-year laboratory assessment, followed by one-year field exposure tests, and then a two-year pilot testing phase before these public agencies can incorporate a new coating into their specifications. Private companies have not documented the same level of testing required before revising their specifications. Further, essential public service coatings were included in the analysis of impacts in the August 6, 2002 Draft SEA.

Response to Comment #4-21

The Essential Public Service Report requested by the commentator is currently not available. The study is to be completed in several phases and is designed to test and evaluate VOC compliant coatings necessary for maintenance and new construction projects for agencies essential to the public. Approximately 100 VOC-compliant industrial maintenance coating systems have already been applied and are undergoing environmental testing over a three-to four-year period.

The first phase of the program consists of evaluating immersion and atmospheric coating systems. The second phase, in addition to atmospheric and immersion coatings includes the technology assessment of chemical containment and roof coating systems. Approximately 90 percent of the coatings in the second phase are already undergoing environmental testing.

SCAQMD Staff plans to present the results of this study to the industry and the Governing Board upon completion.

Response to Comment #4-22

The May 1999 amendments had established an interim VOC limit of 250 g/l (effective July 1, 2002) and a final VOC limit of 100 g/l (effective July 1, 2006) for industrial maintenance coatings. In response to comments from coating manufacturers for higher interim VOC limits for coatings used in chemical storage tanks, which would normally be subject to the industrial maintenance coating limits. The May 1999 amendments had established a separate chemical storage tank coating category with a VOC limit of 420 g/l until July 1, 2006 when a VOC limit of 100 g/l thereafter. Since then, CARB had developed its SCM which was subsequently implemented by many districts. The SCM, as the commentator is aware, has extended the 250 g/l VOC limit for industrial maintenance coatings to January 1, 2004 and offer no separate category for chemical storage tank coatings. In response to comments received staff is now preparing to align the implementation of the interim VOC limit of the industrial maintenance coating category in Rule 1113 with the SCM allowing more time for reformulation for all industrial maintenance coatings including chemical storage tank coating. Along with the extension of the interim VOC limits for industrial maintenance coatings, staff is also proposing to delete the chemical storage tank coating category, as in the SCM, to ensure that all feasible measures are implemented.

Response to Comment #4-23

The SCAQMD's technology assessment demonstrated the availability of both organic and inorganic zinc-rich industrial maintenance primers. Specifically, the Sherwin-Williams Company markets and sells an organic zinc-rich industrial maintenance primer (Zinc Clad VI) that has a VOC content well below the 250 g/l interim limit for industrial maintenance coatings. This specific product, along with a Sherwin Williams Company's waterborne urethane topcoat, was one of the best performing industrial maintenance coating systems in the laboratory-, accelerated exterior-, and real time-exposure studies conducted by National Technical Systems, and discussed in the original and current staff report. However, as indicated by other commentators, currently there are no NSF/ANSI approved zinc-rich industrial maintenance primers with VOC content of less than 340 g/l. The SCAQMD's technology assessment has not resulted in finding NSF/ANSI-approved zinc-rich industrial maintenance primers with a VOC content less than 250 g/l. Therefore, staff has added a separate category called "Zinc-Rich Industrial Maintenance Primers" and has proposed an interim limit of 340 g/l effective January 1, 2003, with a final VOC limit of 100 g/l, effective July 1, 2006.

Response to Comment #4-24

See response to Comment #4-23.

Response to Comment #4-25

See response to Comment #4-23.

Response to Comment #4-26

The SCAQMD disagrees with the commentator that technology does not currently exist for formulating urethane floor coatings with good chemical resistance. As indicated in the Response to Comment #8-7, the SCAQMD's technology assessment indicates availability and widespread use of urethane-based floor coatings with VOC levels below 100 g/l and 50 g/l. These products are specifically recommended for use in aircraft hangars, automotive repair, and other similar uses. The SCAQMD encourages the commentator to share the empirical data collected and evaluate the products included in Appendix D to conduct a side-by-side comparison of these products.

As a part of the technology assessment prior to the May 1999 amendments, staff analyzed hundreds of coatings, including a number of floor coatings, that comply with both the 100 g/l interim VOC limit, as well as the 50 g/l VOC limit to be implemented in July 2006. Furthermore, the technology assessment completed by KTA TATOR, assessed the performance of both single- and multi-component floor coatings. This analysis indicated that the best performing floor coating was a two-component epoxy coating, and one of the two single component compliant floor coatings performed better than the higher VOC floor coatings for most characteristics, and the other performed worse. Additionally, staff has identified numerous additional single- and multi-component floor coatings utilizing a variety of acrylic and urethane chemistries. These products have been added to Appendix D of the Draft Subsequent Environmental Assessment. Based on the SCAQMD's technology assessment and KTA TATOR's laboratory assessment, the interim VOC limit of 100 g/l and the final VOC limit of 50 g/l are feasible. Staff has also revised the industrial maintenance coatings definition to clarify that coatings used on floors exposed to the extreme environmental conditions listed in the industrial maintenance coatings definition will be subject to the VOC limits of industrial maintenance coatings.

Response to Comment #4-27

See response to Comment #4-26.

Response to Comment #4-28

Documentation provided by manufacturers of two-component and single-component polyurethane products that comply with the proposed 100 g/l and 50 g/l VOC limits differs from the commentator's perspective. The commentator does not provide any technical support or empirical data to support its claim about the poor performance of the low-VOC products. The SCAQMD recognizes that shelf life of some of the lower-VOC products is not as long as the shelf life of higher-VOC products, but believes that this issue does not present significant implementation difficulties.

Response to Comment #4-29

The SCAQMD disagrees with the commentator that the 100 g/l will ban the use of two-component polyester urethane products. The commentator is referred to Appendix D, which includes numerous two-component and single-component urethane coatings for the listed uses. As indicated by the results of the NTS Study, the most durable industrial maintenance systems were the low-VOC products, some of which were two-component polyurethane topcoats.

Therefore, more frequent recoating or substitution is not expected to occur with the use of these low-VOC polyurethane floor coatings.

Response to Comment #4-30

The SCAQMD appreciates the information provided by the commentator on the floor coatings, both on VOC content on a regulatory and material basis. The SCAQMD recognizes that the material VOC for waterborne coatings is lower than the regulatory VOC. However, the VOC limits for all coating categories, with the exception of Low-Solids Coatings, are listed as the regulatory VOC content. As a part of the technology assessment prior to the May 1999 amendments, the staff analyzed hundreds of coatings, including a number of floor coatings, that comply with both the 100 g/l interim VOC limit, as well as the 50 g/l VOC limit to be implemented in July 2006. Furthermore, the technology assessment completed by KTA TATOR, assessed the performance of both single- and multi-component floor coatings. This analysis indicated that the best performing floor coating was a two-component coating, and one of the two single component compliant floor coatings performed better than the higher VOC floor coatings for most characteristics, and the other performed worse. Additionally, staff has identified numerous additional single- and multi-component floor coatings and revised Appendix D of the Draft Subsequent Environmental Assessment. Based on the SCAQMD's technology assessment and KTA TATOR's laboratory assessment, the interim VOC limit of 100 g/l and the final VOC limit of 50 g/l are feasible.

Response to Comment #4-31

The SCAQMD agrees with the commentator. The "Waterproofing Wood Sealer" category and definition has been revised to a "Waterproofing Sealer" category to address the commentator's issues.

Response to Comment #4-32

See response to Comment #4-31.

Response to Comment #4-33

The following 8 comments refer to primers that are used on concrete, as well as some problems that may exist if surfaces are not prepared adequately. Specifically, the commentator refers to adhesion issues associated with the use of low-VOC primers over concrete substrates that are not completely cured or has surface contaminants, including bond breakers, form-release oils, laitance, and efflorescence.

The Society for Protective Coatings has specific guidance on the curing, preparation, and coating of concrete. Listed below are just a few of the excerpts from the guidance that lists the importance of proper curing, surface preparation, and coating methods:

- Concrete shall be allowed to cure for 28 days or until a minimum strength of 300 psi is achieved, and coatings shall not be applied until a test is used to determine the moisture level remaining in concrete. The most common test method is ASTM D 4263, "Standard

Method for Indicating Moisture in Concrete by the Plastic Sheet Method." The concrete should only be coated when this shows that there is minimal moisture left in the concrete.

- Concrete and other cementitious surfaces are alkaline, coatings applied directly to them shall be alkali-resistant. Thus, oil-based coatings such as alkyds must never be applied directly to these surfaces. Alkalinity causes drying oils to become saponified and disbanded. If an oil-based coating is desired on cementitious surface, it must be applied over a latex emulsion (waterborne) or another alkali-resistant primer.

- Efflorescence is the result of migrating alkaline products (lime) as concrete cures and moisture migrates to the surface. These alkaline products react with carbon dioxide to deposit fluffy white crystals called efflorescence on the surface. The guidelines specifically indicate that "this loose material should be removed, preferably by dry brushing, before painting the concrete"

- Laitance is formed during working and curing of new concrete, and is usually the result of overworking the mixture, resulting in a powdery surface. Upon fully curing, this is converted into a thin, brittle layer that is poorly bonded. The guidelines specifically indicate that "Like mill scale, it must be removed mechanically before coating, or its later disbondment will damage the coating."

- The placement of concrete is done with only five basic mechanisms. The surface texture and general appearance of placed concrete will vary with the specific method used. Surface hardners may be applied to uncured concrete surface to increase hardness and chemical resistance and to decrease permeability. However, these hardners prevent good adhesion, so the concrete surface must be lightly abrasive-blasted to roughen it before coating application.

- One of the methods for placing concrete is Cast-in-Place, which includes placing the concrete into vertical forms, which is vibrated to reduce the number of air voids. These forms are usually precoated with form release agents for their easy removal from the concrete after it has cured. The guidelines specifically indicate that "residual release agent on the concrete must be removed before it is coated."

SSPC has the above as general guidelines for the coating of concrete regardless if the coating is a low-VOC waterborne or high-VOC solvent-based product. However, the SSPC strongly recommends against the use of oil-based alkyd coatings directly onto the concrete.

During the development of the KTA TATOR Study, the industry members had the opportunity, including representatives of Textured Coatings of America (TAC), to provide additional issues that need to be included as a part of the assessment work. TCA wanted the District's contractor to analyze the effectiveness of primers when coating concrete substrates contaminated with form-release oils. Since the contractor was unable to locate an established test method or protocol for testing such an unusual practice, the District requested TCA to forward a protocol for conducting such an assessment for subsequent approval by the TAC. However, TCA failed to provide a protocol, and the specific testing was not conducted.

The Specialty Primers category was proposed and adopted at the public hearing on May 14, 1999 based on comments heard by the Governing Board. The commentator states that the NTS Study results indicated that "ALL" solvent-based, alkyd primers performed better than "ALL" waterborne primers included in the assessment. The NTS Study evaluated numerous general primers, sealers, and undercoaters (PSUs) for numerous characteristics, and the results indicated that although solvent-based PSU performed better than waterborne PSUs for stain-blocking, waterborne PSUs performed better than their solvent-based counterparts for most other characteristics. Based on the NTS laboratory results for stain-blocking, the SCAQMD, along with the TAC, decided to further evaluate the stain-blocking aspect under the KTA TATOR assessment. In this study, both latex waterborne and alkyd, solvent-based PSUs marketed as stain-blocking primers were selected for a side-by-side comparison. The results of the KTA TATOR study clearly show that two of the three waterborne stain-blocking primers performed equally to their solvent-based counterparts for stain-blocking, as well as other characteristics. One of the three low-VOC formulations performed worse. Therefore, based on the technology assessment conducted specifically for stain-blocking, staff will not propose modifying the definition of the Specialty Primers.

Response to Comment #4-34

The SCAQMD's technology assessment has shown a wide variety of primers available that meet the 200 g/l interim limit. These primers are available for a variety of uses, including use on cementitious surfaces. The compliant products provide excellent adhesion to properly prepared substrates. Additionally, the commentator believes that the use of acetone as a co-solvent is the only method of reformulating the product. If a manufacturer wants to maintain a solvent-based alkyd primer, there are other exempt solvents that can be used, including but not limited to, parachlorobenzoflouride (PCBTF). However, other resin chemistries used for primer systems exhibit similar or superior performance characteristics, including adhesion, as compared to alkyd systems, which can suffer from saponification when used on cementitious surfaces.

Response to Comment #4-35

It is generally acknowledged that a surface should be prepared based on the manufacturers recommendations for best performance. The Society for Protective Coatings recommends that concrete should be fully cured prior to subsequent coating. The commentator recommends not following such guidelines and using specialty primers to overcome issues associated with coating of uncured concrete. If the concrete is allowed to fully cure and is then prepared for coating (i.e., removing any dirt, oils, residue) as recommended, the problems cited by the commentator would not occur. Further, latex primers perform equally or superior to solvent-based primers in terms of durability.

Response to Comment #4-36

See response to Comment #4-35. The commentator is again referring to not following surface preparation guidelines published by the manufacturer of low-VOC coatings, as well as recommended practices for surface preparation by SSPC. Staff's technology assessment has shown that numerous manufacturers have developed low-VOC primers that exhibit good adhesion to properly cured and prepared concrete.

Response to Comment #4-37

The commentator is again recommending that the VOC limit of primers for concrete be revised based on poor surface preparation techniques. Additionally, the commentator's description of its in-house testing seems to indicate that the low-VOC primers were used without removing the form-oils or solvent was added to adjust the VOC of the product as supplied. This is probably not following the recommended surface preparation practice or application practices of the manufacturer.

Response to Comment #4-38

The low-VOC primers adhere very well to properly prepared concrete substrates. The commentator continues to state that the latex primers do not work on improperly prepared substrates. The SCAQMD in all of its documentation, as well as the manufacturer of low-VOC primers do not claim that the products perform well when a contractor is not following recommended practices for application.

Response to Comment #4-39

The commentator indicates that alkalinity may contribute to excessive chalking. The Specialty Primers Category already includes provisions for allowing this category to be used when the primer is designed for conditioning excessively chalky surfaces, having a chalk rating of four or less as determined by ASTM D-4214 – Photographic Reference Standard No. 1 or the Federation of Societies for Coatings Technology "Pictorial Standards for Coatings Defects." The Society for Protective Coatings recommends that concrete should be fully cured prior to subsequent coating. The commentator recommends not following such guidelines and using specialty primers to overcome issues associated with coating of uncured concrete. If the concrete is allowed to fully cure and is then properly prepared for coating (i.e., removing any dirt, oils, residue) as recommended, the problems cited by the commentator would not occur. As a result, latex primers would perform equally or superior to solvent-based primers in terms of durability.

Response to Comment #4-40

The commentator does not list the typical coverage provided by a product with a VOC content of less than 200 g/l. Staff has found that the overall solids by volume content is generally the same for waterborne primers recommended for use on concrete as their solvent-based counterparts. The Environmental Assessment included as part of the Staff Report to the Governing Board analyzes this issue in detail. It resulted in a finding that even under a hypothesis that a waterborne primer provides less coverage, there is still an overall emissions benefit. As a result, there is no significant adverse environmental effect from this issue.

Response to Comment #4-41

The SCAQMD disagrees with the commentator that the 2006 limits should be stricken. The technology assessment conducted in 1998 and 1999 showed the presence of numerous industrial maintenance coating systems that comply with the proposed July 2006 limits. Additionally, the NTS Study clearly showed that some of the best performing industrial maintenance systems were the products that complied with the July 2006 limits. Additional information gathered over the past few months shows availability of numerous additional coatings that comply with the July 2006 limit. Therefore, the final limits for July 2006 are feasible and are proposed to remain in the rule. Nonetheless, the proposed rule contains provisions for another technology assessment prior to implementation of the final limits, as well as a commitment to assess reactivity as an alternative ozone control strategy.

Response to Comment #4-42

This data are based on the CARB Survey for sales in 1996. Numerous nonflat and industrial maintenance coatings that comply with the final limit were available in 1999, and more products are available in 2002. Appendix D lists additional coatings staff has found for both nonflats and industrial maintenance coatings that comply with the interim and final VOC limits. The trend is towards formulations that exhibit a broad range of characteristics, and the same product has broader applicability. For example, Sherwin Williams Company, a member of the NPCA, has nonflat and industrial maintenance coatings, both interior and exterior, that comply with the July 1, 2006 proposed limits. Harmony, a nonflat coating, is available for a variety of interior uses and has a VOC content of < 10 g/l. The Centurion two-component polyurethane has a VOC content of 66 g/l, which meets the final 2006 limit, and is recommended for a variety of uses. The following is a description of this product from Sherwin Williams Company's website:

Centurion Water Based Urethane

New from Sherwin-Williams is Centurion Water Based Urethane, an advanced technology, VOC-compliant polyester urethane coating. This high-gloss abrasion-resistant urethane has excellent weathering properties and provides performance characteristics comparable to premium-quality solvent based urethanes.

Centurion Water Based Urethane retains its appearance over a wide range of chemical, weather and mechanical conditions and can be applied directly to water based and solvent based organic zinc rich primers. It provides a 2-hour pot life and dries to the touch in 1-1/2 hours at 77 degrees and 50 percent relative humidity. The versatile coating can be brushed, rolled or spray applied.

Centurion Water Based Urethane is suitable for use in USDA-inspected facilities. This low-odor, non-flammable product is also recommended for use over prepared substrates in industrial and marine environments, such as: off-shore platforms, structural steel, paper mills, power plants, conveyors, marine applications, industrial equipment, exterior surfaces of steel tanks, rail cars and locomotives, chemical processing equipment, bridges and refineries.

Sierra Performance and Fuhr have nonflat exterior paints with zero-VOCs and is recommended for all exterior uses. Duromar and Enviroline have also introduced a wide variety of industrial maintenance coatings that are recommended for a variety of uses. The commentator is referred to Appendix C of the staff report for a more comprehensive list of nonflat and industrial maintenance products that comply with the 2006 limits. Staff disagrees with the commentator's assertion that large numbers of coating applications would not have compliant products available and invites the commentator to submit documentation in support of the assertion.

Response to Comment #4-43

See response to Comment #4-42. The SCAQMD has sent a package of product data sheets for the variety of coatings, and has previously informed the commentator that these product data sheets are available from the manufacturers and their websites, should the commentator choose to expedite his review of the SCAQMD's technology assessment. The SCAQMD appreciates the feedback from the manufacturers of the coatings regarding miscategorization of some products. The tables have been revised based on comments received.

Response to Comment #4-44

The SCAQMD disagrees with the commentator about the conclusions of the FHWA study. The best performing products were the metallized spray coatings for bridge applications that have zero-VOC. The SCAQMD agrees with the commentator that these products should be included in real time exterior exposure tests and therefore were included in the Essential Public Service Coating Technology Assessment. The commentator is also ignoring the fact that the interim VOC limit for industrial maintenance coatings is 250 g/l, and that the study included numerous coating systems that comply with the interim limit proposed by the SCAQMD. Therefore, the study included coating systems for both the proposed interim and final limits for industrial maintenance coatings.

Response to Comment #4-45

The SCAQMD disagrees with the commentator's assertions that the FHwA study concluded that the metallized coatings are unsafe, especially since bridges are coated with trained professionals only. Additionally, the zero-VOC inorganic zinc coating performed well for corrosion resistance, but typically is topcoated. However, there are numerous organic topcoats included in the study that comply with the proposed interim limit for industrial maintenance coatings. The commentator is selecting portions of the study by indicating that the high-VOC control system performed well when compared to non-zinc epoxy systems, but clearly ignores the control's performance to zinc-rich epoxy systems. CalTrans currently uses an acrylic coating for all of their bridges applications in the Southern California area. The previous year, they only used 102 gallons of coatings with a VOC content greater than 250 g/l, two of which were products with a VOC content of 260 g/l, and one with a VOC content of 300 g/l. This clearly shows that the acrylic products are in use and perform at a satisfactory level. Lastly, the FHwA study's scope was to evaluate coatings for bridges only, and not for all types of application environments. The commentator is simply trying to use the specific bridge study and attempting to reach conclusions for all application environments. The SCAQMD's staff report and reference materials have studies for all different application environments that show that low-VOC industrial maintenance products perform just as well, and in some instances better, than their high-VOC counterparts.

Response to Comment #4-46

The SCAQMD disagrees with the commentator that very few latex nonflat coatings are currently available that comply with the final 50 g/l limit. Additionally, the SCAQMD has identified other types of resin chemistries that may be used for exterior nonflat uses, including urethane and other co-polymer systems with VOC contents less than 50 g/l. The commentator is encouraged to review Appendix C of the Staff Report that includes a comprehensive list of nonflat coatings (both interior and exterior) that meet the 50 g/l limit.

Response to Comment #4-47

Thank you for your participation in this rulemaking and CEQA process. All comments received will be considered as part of the amendment process for PAR 1113 and included in the administrative record.

Response to Comment #4-48

The SCAQMD has the following comments on the Table of Standards Proposed by the Commentator, based on the order in the table:

- The SCAQMD agrees with the commentator that the implementation date for interim limits for most coatings should be revised to January 1, 2003.
- The SCAQMD has deleted the Chemical Storage Tank Coating category. This category is considered to be an industrial maintenance coating and the proposed interim limit is 250 g/l effective July 1, 2004.
- The SCAQMD agrees with the commentator and has deleted the category for Essential Public Service Coating, thereby requiring the same limits and implementation dates as the industrial maintenance coatings category.
- The SCAQMD disagrees that the final limit of 50 g/l for flat coatings should be deleted. The Staff Report includes listings of products that meet the proposed VOC limit of 50 g/l for flat coatings.
- The SCAQMD disagrees with the commentator that the interim limit for floor coatings should be revised to 250 g/l and the final limit should be deleted. This issue has been addressed in earlier responses to comments.
- The SCAQMD disagrees with the commentator that the final limits for High Temperature Industrial Maintenance Coatings should be deleted. The SCAQMD has revised the interim VOC limit to align the schedule with the CARB's SCM.
- The SCAQMD agrees with the commentator and has revised the implementation date for the industrial maintenance coatings category to January 1, 2004, thereby aligning it with the CARB's SCM. The SCAQMD disagrees with the commentator that the final limit should be deleted. This issue has been addressed in earlier responses to comments.
- The SCAQMD agrees with the commentator and has revised its proposal to include a separate zinc-rich industrial maintenance category based on lack of NSF/ANSI approved zinc-rich primers with a VOC content of 250 g/l or less, but disagrees with the commentator that the final limit should be deleted. As mentioned earlier, the technology for zinc-rich industrial maintenance primers with VOC contents of less than 250 g/l and 100 g/l exists today, and performs equally or superior to its higher-VOC counterparts.

The four year time frame should allow manufacturers of the low-VOC zinc-rich industrial maintenance coatings to seek NSF/ANSI approval. Furthermore, local water agencies are evaluating other products that do not require use of zinc-rich primers for potable water.

- The SCAQMD disagrees that a new category for Nonflat High Solids is necessary. The solids content of the compliant nonflat products is comparable to their higher-VOC counterparts.
- The SCAQMD disagrees with the commentator that the Nonflat High Gloss category should be created and have a higher VOC of 250 g/l. This issue has been addressed in earlier responses to comments.
- The SCAQMD disagrees that the final limits for Primers, Sealers, and Undercoaters, Quick-Dry Enamels, Quick-Dry Primers, Sealers, and Undercoaters should be deleted. This issue has been addressed in earlier responses to comments.
- The SCAQMD agrees with the commentator that the final limits for Recycled Coatings should be deleted. The proposal has been revised to reflect this change.
- The SCAQMD disagrees with the commentator that the final limit for Rust Preventative Coatings should be removed. The Staff has found numerous products that meet the proposed final limit of 100 g/l, and various comments from industry in the public workshop and consultation meetings have indicated that lower-VOC industrial maintenance coatings can be used for rust preventative uses. Some of these acrylic products have a VOC content of less than 100 g/l.
- The SCAQMD disagrees with the Commentator that the Specialty Primers definition needs to be revised and that the final limit needs to be deleted. This issue has been addressed in earlier responses to comments.
- The SCAQMD agrees with the commentator and has revised the category from Waterproofing Wood Sealers to Waterproofing Sealers.

Response to Comment #4-49

The SCAQMD disagrees with the commentator's revision to the Architectural Coatings definition. The SCAQMD has revised the Applicability section to reflect the field-only use of architectural coatings.

Response to Comment #4-50

The SCAQMD has deleted the Chemical Storage Tank Coating category. This category is considered to be an industrial maintenance coating and the proposed interim limit is 250 g/l effective July 1, 2004.

Response to Comment #4-51

The SCAQMD is proposing to modify the definition for Industrial Maintenance Coatings to include the wording suggested by the commentator.

Response to Comment #4-52

The SCAQMD agrees with the proposed change and has revised its proposal.

Response to Comment #4-53

The SCAQMD disagrees with the proposed modification to the Metallic Pigmented Coatings.

Response to Comment #4-54

The SCAQMD disagrees that a new category for Nonflat High Solids is necessary. The solids content of the compliant nonflat products is comparable to their higher-VOC counterparts

Response to Comment #4-55

The SCAQMD disagrees with the commentator that the Nonflat High Gloss category should be created and have a higher VOC of 250 g/l. This issue has been addressed in earlier responses to comments.

Response to Comment #4-56

The SCAQMD agrees with the commentator and has revised the proposed definition.

Response to Comment #4-57

The SCAQMD agrees with the commentator and has revised the proposed definition.

Response to Comment #4-58

The SCAQMD disagrees with the commentator's proposed definition. This issue has been addressed in earlier responses to comments.

Response to Comment #4-59

The SCAQMD agrees with the commentator and has revised the proposed definition.

Response to Comment #4-60

The SCAQMD agrees with the commentator and has revised the proposed definition.

Response to Comment #4-61

The SCAQMD agrees with the commentator and has revised the proposed definition.

Response to Comment #4-62

The SCAQMD agrees with the commentator and has revised the proposed definition.

Response to Comment #4-63

The SCAQMD agrees with the commentator and has revised the proposed definition.

Response to Comment #4-64

The commentator is referring to primers that may be used when surface preparation is not conducted, as recommended by NACE or SSPC prior to coating a concrete substrate. This does not justify the need to add additional parameters to the Specialty Primers category. The CARB's SCM also does not include products for blocking odors or efflorescence in their definition of Specialty Primers. The commentator is encouraged to review the definition in the SCM. The District's technology assessment has shown that PSUs with a VOC content less than 200 g/l (ranging from 0 g/l to 200 g/l) are available for a variety of uses, and with proper surface preparation, perform at an equal or superior level than their higher-VOC solvent-based counterparts. The list of these products was included in the original staff report, and an additional list of new products is included in the current staff report. The NTS Study evaluated the PSU for a variety of different characteristics and found that performance was equivalent or superior their higher-VOC counterparts. The commentator can formulate low-VOC primers using a broad range of resins or choose to use exempt solvents, whichever is preferred and most cost-effective for his company.

Response to Comment #4-65

The commentator is again referring to not following surface preparation guidelines published by the manufacturer of low-VOC coatings, as well as recommended practices for surface preparation by SSPC. The recommendations are to use the products on substrates that have been thoroughly cleaned and free of oils, powdery residue, and other contaminants. For use on concrete, the concrete must be completely cured prior to application of the lower-VOC PSUs. The commentator is again referring to not following surface preparation guidelines published by the manufacturer of low-VOC coatings, as well as recommended practices for surface preparation by SSPC. It is common knowledge that for coating concrete, form release oils should be thoroughly removed and concrete should be fully cured prior to applying subsequent coatings to prevent adhesion problems by latex primers.

Response to Comment #4-66

The commentator is again referring to not following surface preparation guidelines published by the manufacturer of low-VOC coatings, as well as recommended practices for surface preparation by SSPC. Staff's technology assessment has shown that numerous manufacturers have developed low-VOC primers that exhibit good adhesion to properly cured and prepared concrete. This testing was conducted in the NTS Study. The District has included numerous products in their original staff report and current staff report that are below the 200 g/l VOC limit, and exhibit good adhesion characteristics.

Response to Comment #4-67

The commentator is again recommending that the VOC limit of primers for concrete be revised based on poor surface preparation techniques. The commentator is referred to response to Comment #4-64. Additionally, the commentator's description of its in-house testing seems to indicate that the low-VOC primers were used without removing the form-oils or solvent was added to adjust the VOC of the product as supplied, even if the co-solvent in the original formulation was different and optimally added for maximum performance. This is not following the recommended surface preparation practice or application practices of any manufacturer of low-VOC PSUs. One cannot simply add some random solvent to a waterborne coating and expect any type of predictable performance.
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Response to Comment #4-68

The NTS Study proved that low-VOC primers adhere very well to properly prepared substrates. The commentator continues to state that the latex primers do not work on improperly prepared substrates. The District in all of its documentation, as well as the manufacturer of low-VOC primers do not claim that the products perform well when a contractor is not following recommended practices for application.

Response to Comment #4-69

The commentator indicates that alkalinity may contribute to excessive chalking. The Specialty Primers Category includes provisions for allowing this category to be used when the primer is designed for conditioning excessively chalky surfaces, having a chalk rating of four or less as determined by ASTM D-4214 – Photographic Reference Standard No. 1 or the Federation of Societies for Coatings Technology "Pictorial Standards for Coatings Defects". In this particular case of excessive chalkiness, the current definition of Specialty Primers will allow the use of a product with a VOC content of up to 350 g/l.

Response to Comment #4-70

The Society for Protective Coatings (SSPC) recommends that concrete should be fully cured prior to subsequent coating. The commentator recommends not following such guidelines and using specialty primers to overcome issues associated with coating of uncured concrete. If the concrete is allowed to fully cure, and prepared for coating (i.e., removing any dirt, oils, residue) as recommended, the problems cited by the commentator would not occur and latex primers perform equally or superior to solvent-based primers in terms of durability. The rate of curing of concrete can vary based on a variety of variables, including temperature, humidity, and the actual composition of the raw materials utilized. The SSPC does not recommend coating of uncured concrete, since that practice may lead to coating failure.

.Response to Comment #4-71

The potential economic hardship to building contractors, owners, and occupants would be minimized if the painting contractor implements SSPC guidelines for curing and preparing concrete prior to coating.

Response to Comment #4-72

The commentator does not list the typical coverage provided by a product with a VOC content of less than 200 g/l. Staff has found that the overall solids by volume content is generally the same for waterborne primers recommended for use on concrete as their solvent-based counterparts. It resulted in a finding that even under a hypothesis that a waterborne primer provides less coverage, there is still an overall emissions benefit.

Response to Comment #4-73

The staff disagrees with the proposed definition and has concluded that the current proposed definition of the Specialty Primers Definition includes all of the problematic areas where a higher VOC primer is necessary. These specific problem areas are included in the proposed definition.